



3-Statement Modeling

Course Instructor



Duncan McKeen

Executive Vice President

Creative. Methodical. Meticulous.

Duncan is fascinated with pedagogy and loves course creation and design. He is an effective communicator with extensive experience teaching financial modeling, accounting, analysis & valuation. Prior to teaching, Duncan held senior equity research positions with top banks & brokerages. He has solid analytical skills with an Engineering degree, Master of Finance degree and a CFA Charter.

Learning Objectives



Explore a framework and guidelines for effective financial modeling.



Analyze a company's operations and divide a financial model into schedules.



Approach each schedule with a consistent layout and structure.



Calculate key outputs within the model schedules.



Finalize and review the financial model, ensuring integrity.



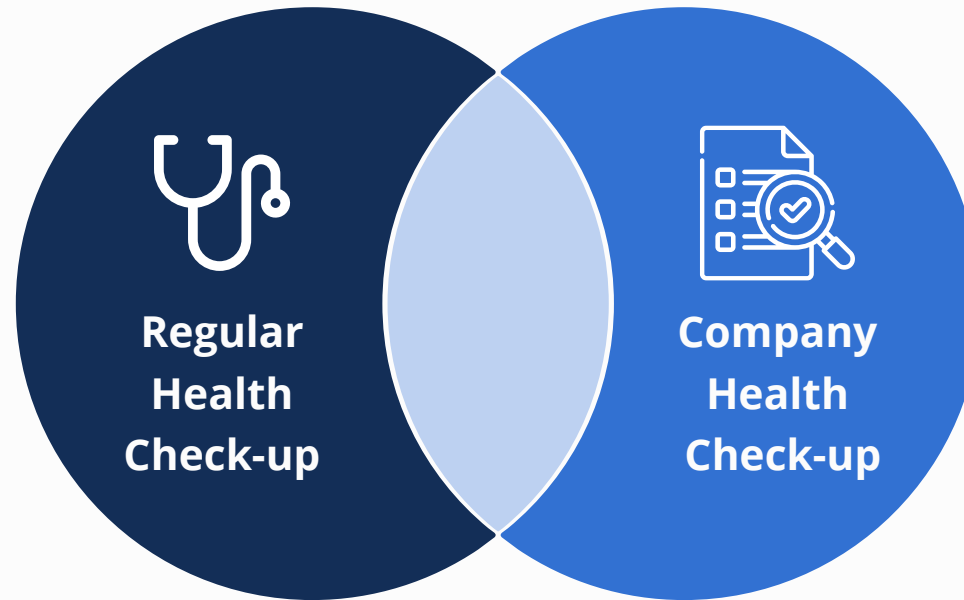
Create and maintain a library of schedules or building blocks.

Company Health Check

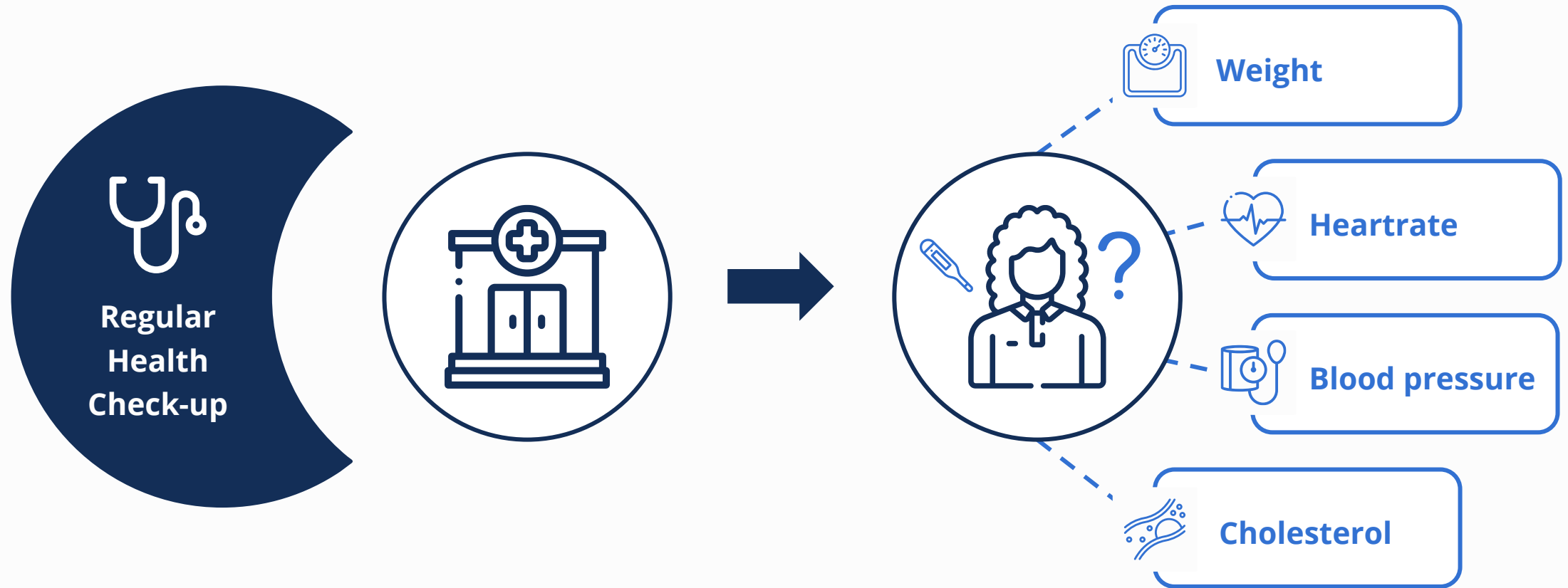
Regular Health Check-up



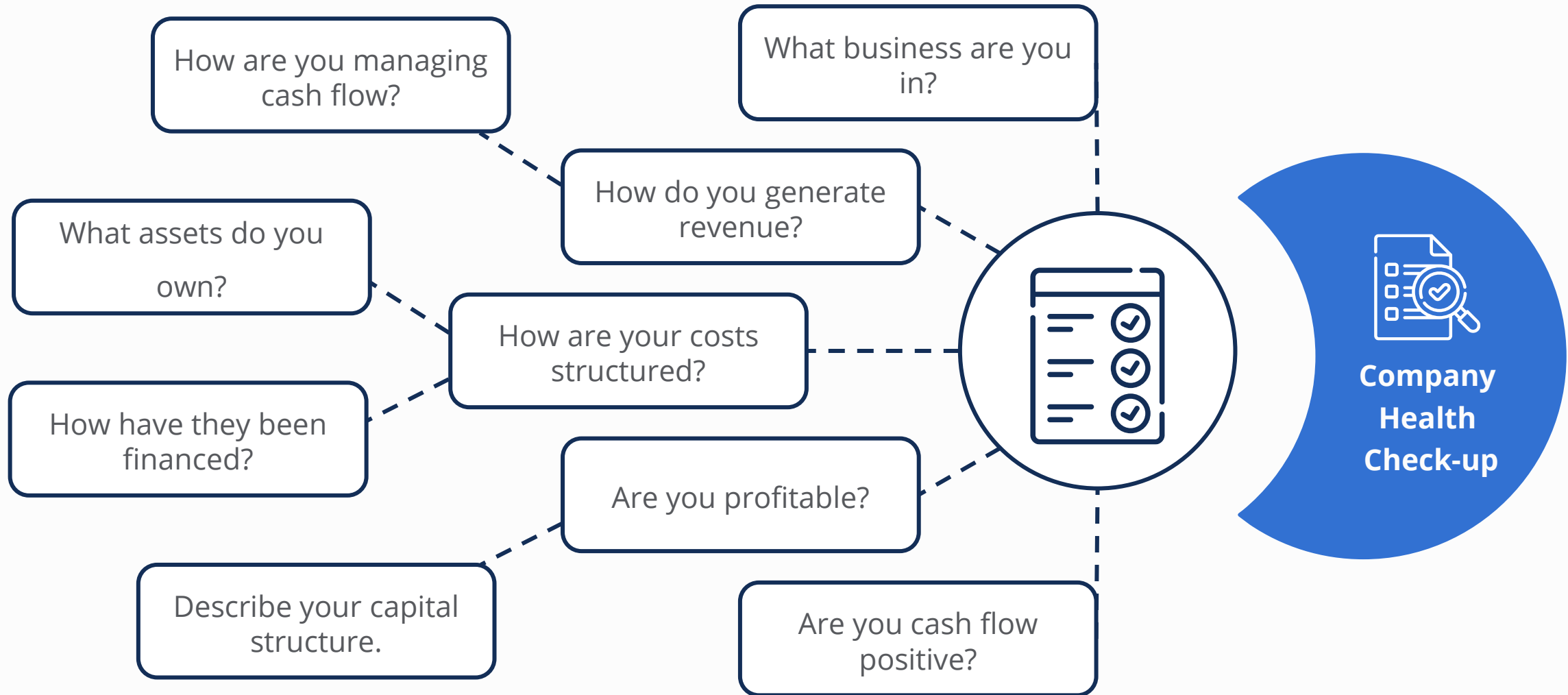
What does a regular health check-up involve?



Regular Health Check-up



Regular Health Check-up



How We Can Address All These Questions



We are going to start by **organizing all of the company's figures.**



Then we are going to **construct schedules to share various details** about the company.



Each of these schedules may **show different aspects of health** (i.e., financial statements).



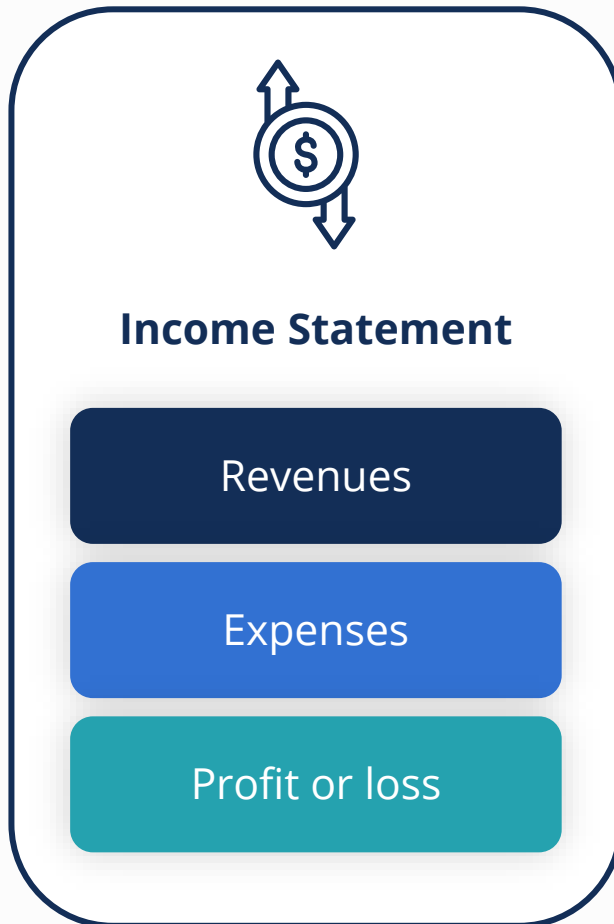
Use these schedules to get a more **wholesome view of the health of the company.**

In order for these schedules to be helpful, we need to **understand what they are showing and how to use them.**

Overview of Financial Statements

What Do Financial Statements Show Us

Let's look at the financial statements to understand exactly **what they show us.**



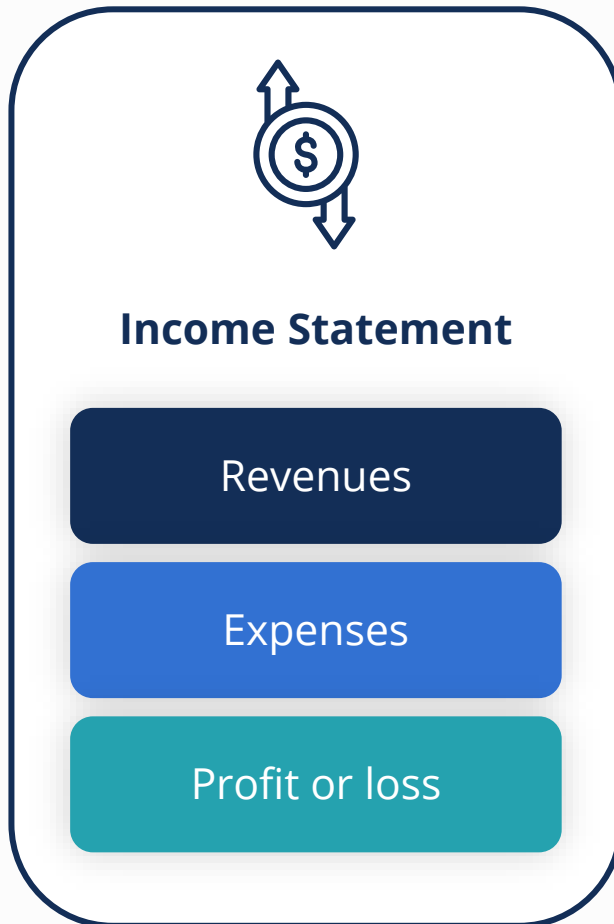
Income Statement

All figures in USD thousands

	2023F	2024F	2025F
Revenue	68,000	59,000	62,000
COGS	(25,000)	(32,000)	(30,000)
Gross Profit	43,000	27,000	32,000
SG&A	(5,000)	(7,000)	(6,000)
Other	(1,500)	(1,500)	(1,500)
EBITDA	36,500	18,500	24,500
Depreciation	(3,000)	(3,000)	(3,000)
EBIT	33,500	15,500	21,500
Interest Expense	(7,000)	(7,000)	(7,000)
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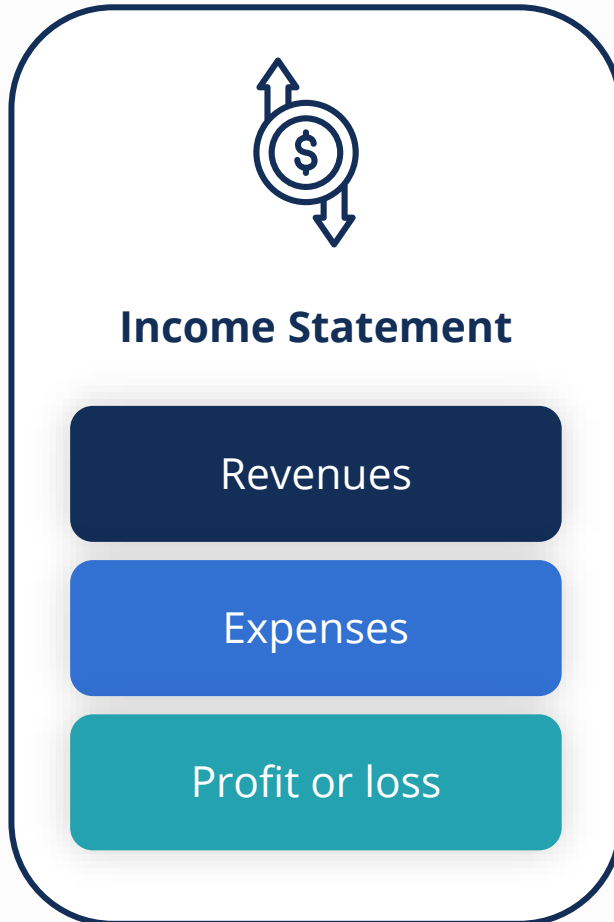
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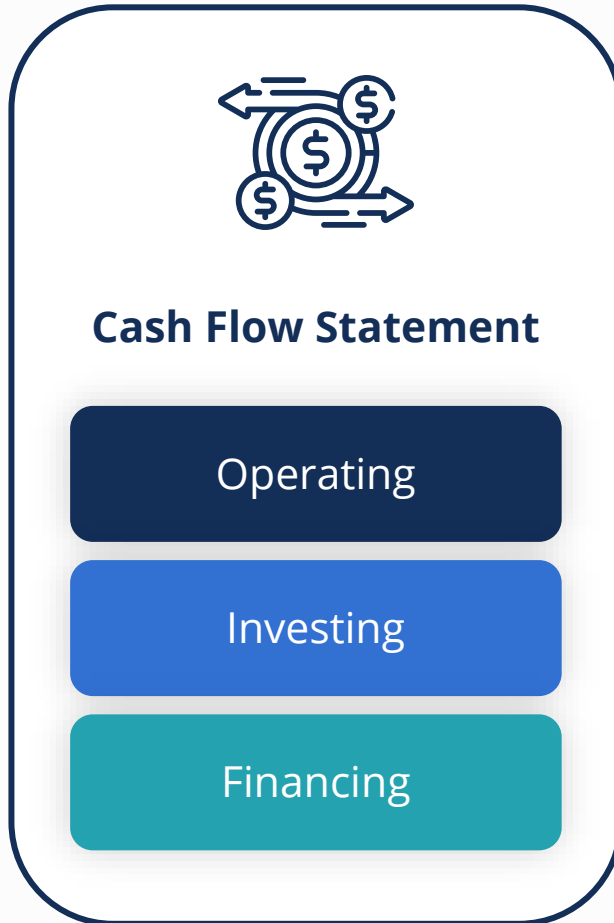
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Cash Flow Statement

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Equity Issue / (Buyback)	1,500	-	-
Payment of Dividends	(2,000)	(2,000)	(2,000)
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Beginning	15,000	34,000	37,000
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Cash Flow Statement

Operating

Investing

Financing

Cash Flow Statement

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Balance Sheet

All figures in USD thousands

	2022A	2023F	2024F	2025F
ASSETS				
Cash	15,000	34,000	37,000	42,500
Accounts Receivable	6,000	4,000	2,000	–
Inventory	4,000	5,500	7,000	8,500
Property Plant & Equipment	65,000	66,500	68,000	69,500
Total Assets	90,000	110,000	114,000	120,500
LIABILITIES				
Accounts Payable	8,000	9,000	10,000	11,000
Line of Credit	7,000	5,000	6,500	4,500
Term Loan	25,000	21,500	18,000	14,500
Deferred Taxes	1,000	2,000	3,000	4,000
Total Liabilities	41,000	37,500	37,500	34,000
EQUITY				
Equity Capital	44,000	45,500	45,500	45,500
Retained Earnings	5,000	27,000	31,000	41,000
Shareholders' Equity	49,000	72,500	76,500	86,500
Total Liabilities & Equity	90,000	110,000	114,000	120,500



Balance Sheet

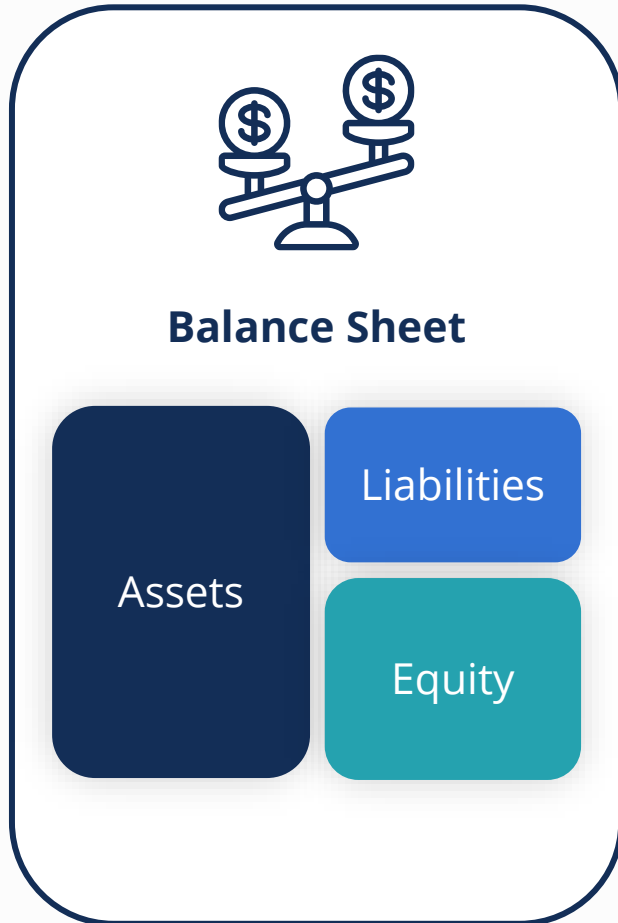
Assets

Liabilities

Equity

What Do Financial Statements Show Us

Let's look at the financial statements to understand exactly **what they show us**.



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All figures in USD thousands

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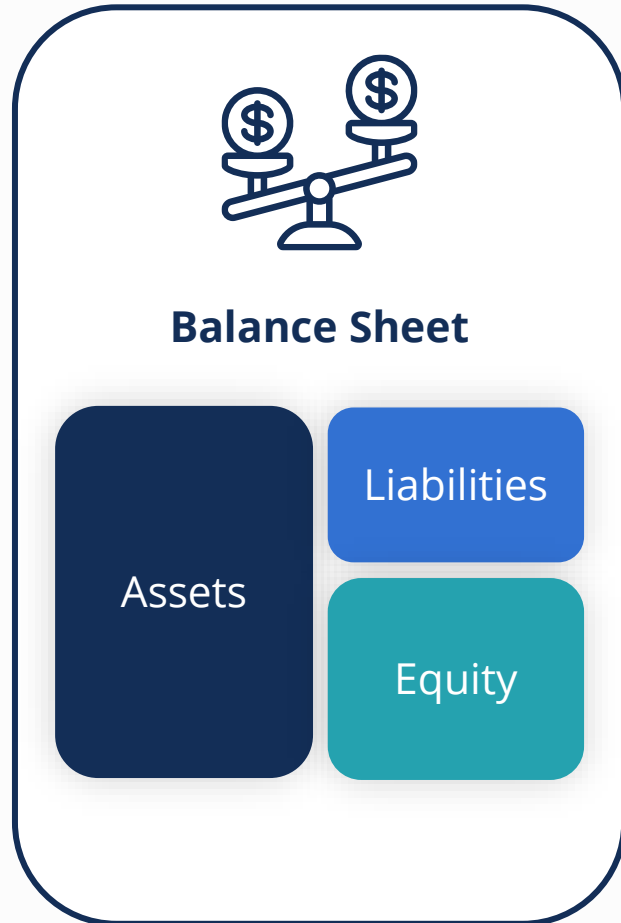
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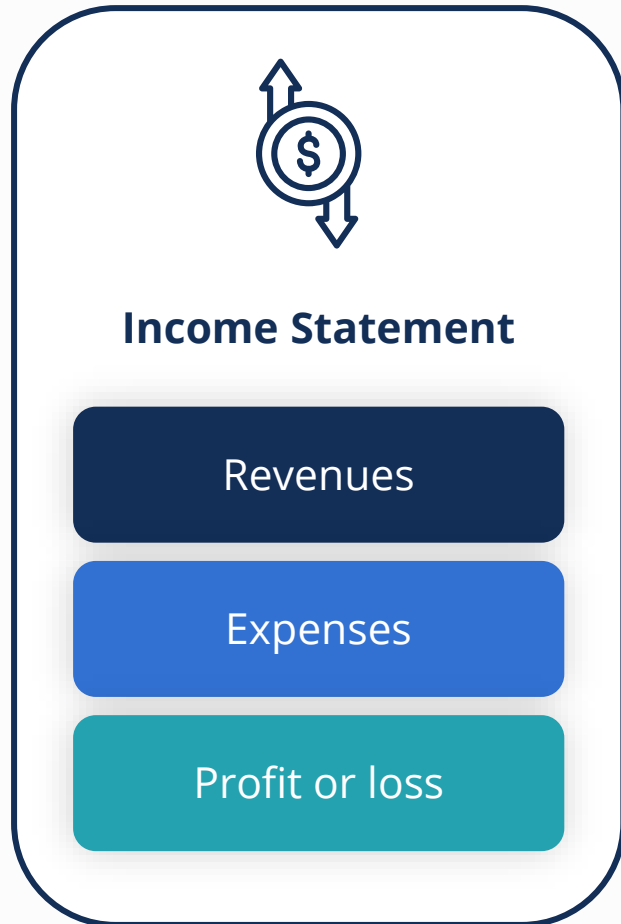
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Main Goal of Each Statement

Now that we have done a high-level review of common line items, we want to start thinking about the **main goal of each statement**.



Income Statement

Revenues

Expenses

Profit or loss



Provides a meaningful measure of profitability

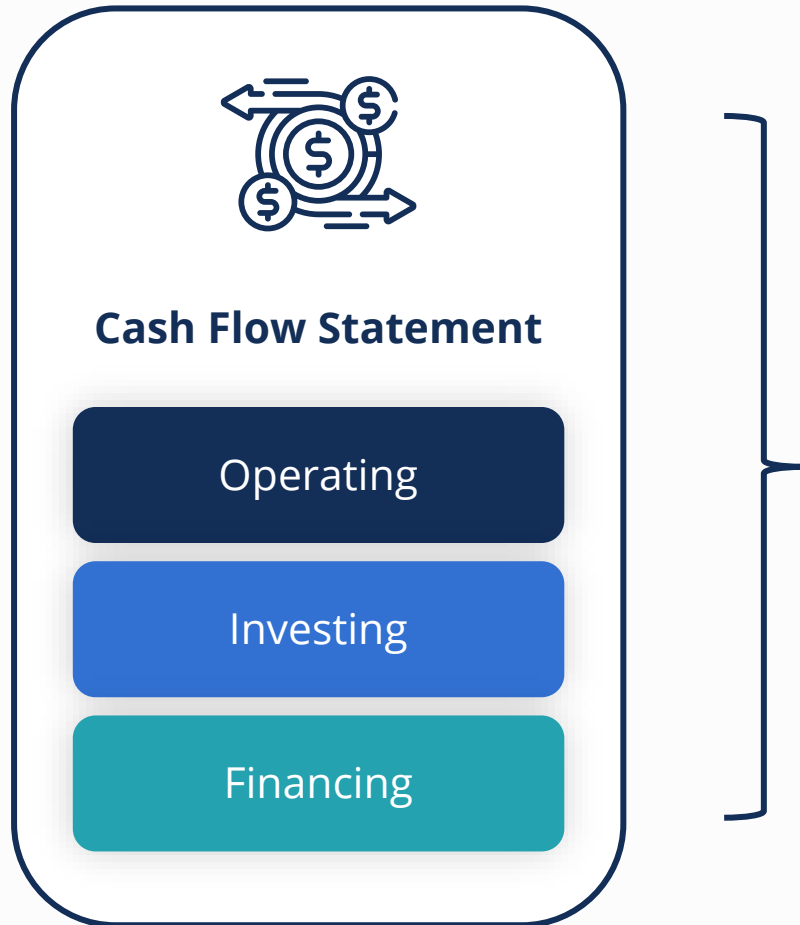
The income statement shows accrued costs and expenses in the correct period for an accurate picture of profitability.



But how does the company **manage cash flow**?

Main Goal of Each Statement

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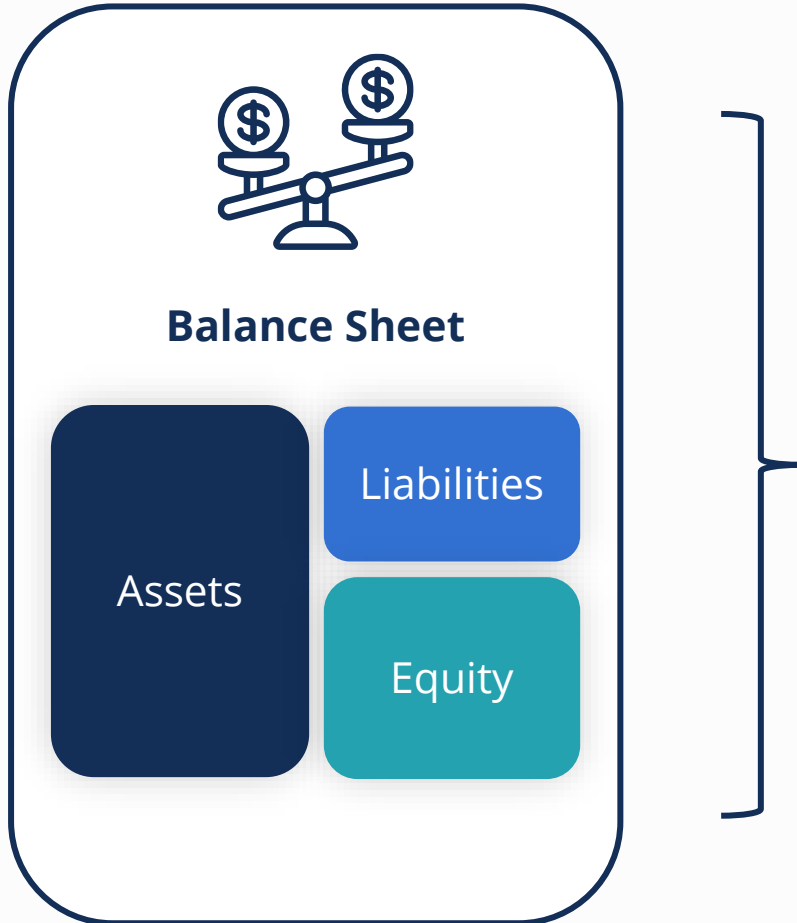


Assess the management of cash flow

The cash flow statement tracks the physical flow of cash both in and out of the corporation.

Main Goal of Each Statement

Now that we have done a high-level review of common line items, we want to start thinking about the **main goal of each statement**.



Review assets and how they are financed

The balance sheet will list the corporation's assets and show how they have been financed (e.g., debt, equity).

Main Goal of Each Statement

Now that we have done a high-level review of common line items, we want to start thinking about the **main goal of each statement**.



Income Statement

Meaningful measure of
profitability



Cash Flow Statement

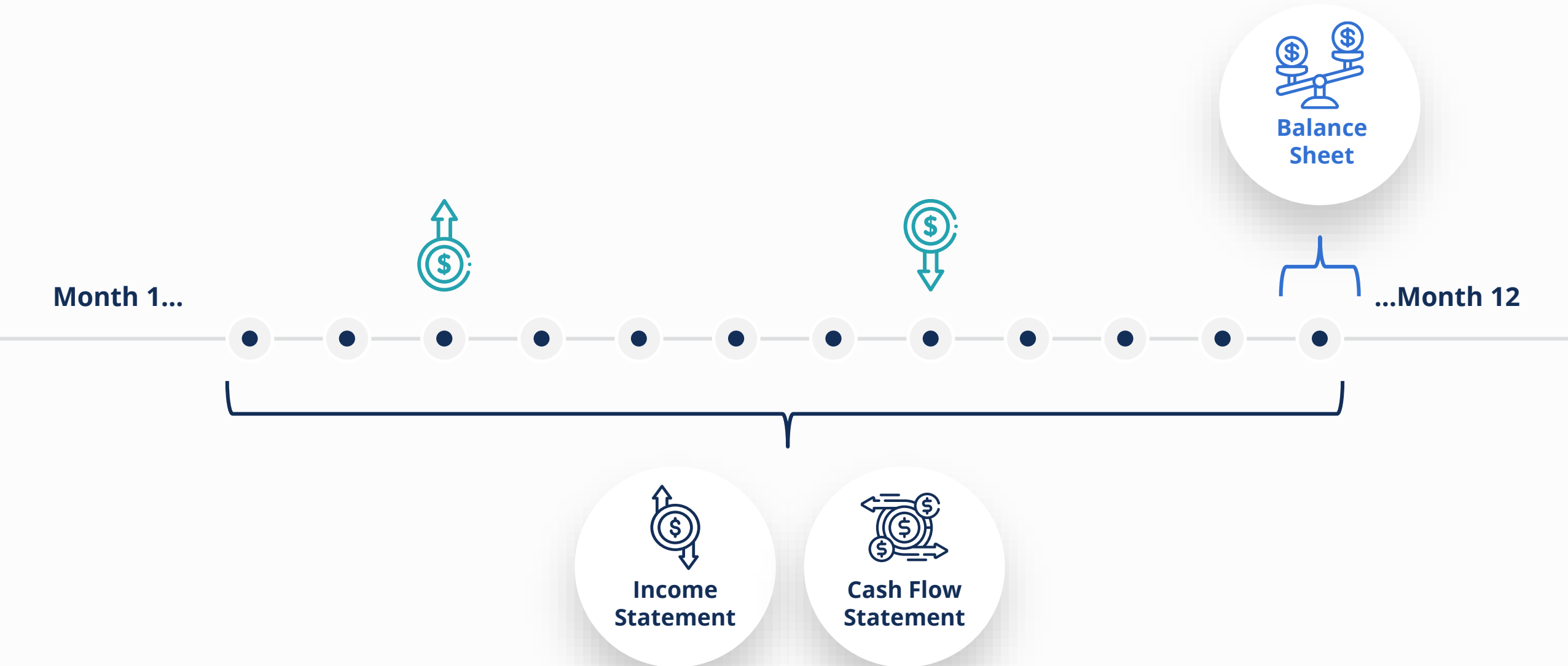
Assess the management
of **cash flow**



Balance Sheet

Review **assets** and how
they are **financed**

Are We Seeing a Period or a Point in Time



Role of Finance Professionals

What Is Our Role as Finance Professionals

There are several steps we are going to be required to do:



Prepare reports to evaluate business.



Add clear schedules to support them.



Link the financial statements together.



Confirm that they balance correctly.



Review the model for integrity.



Setup for presentation and printing.

Order of Preparing the Statements

There are several steps we are going to be required to do:

Income Statement

All figures in USD thousands

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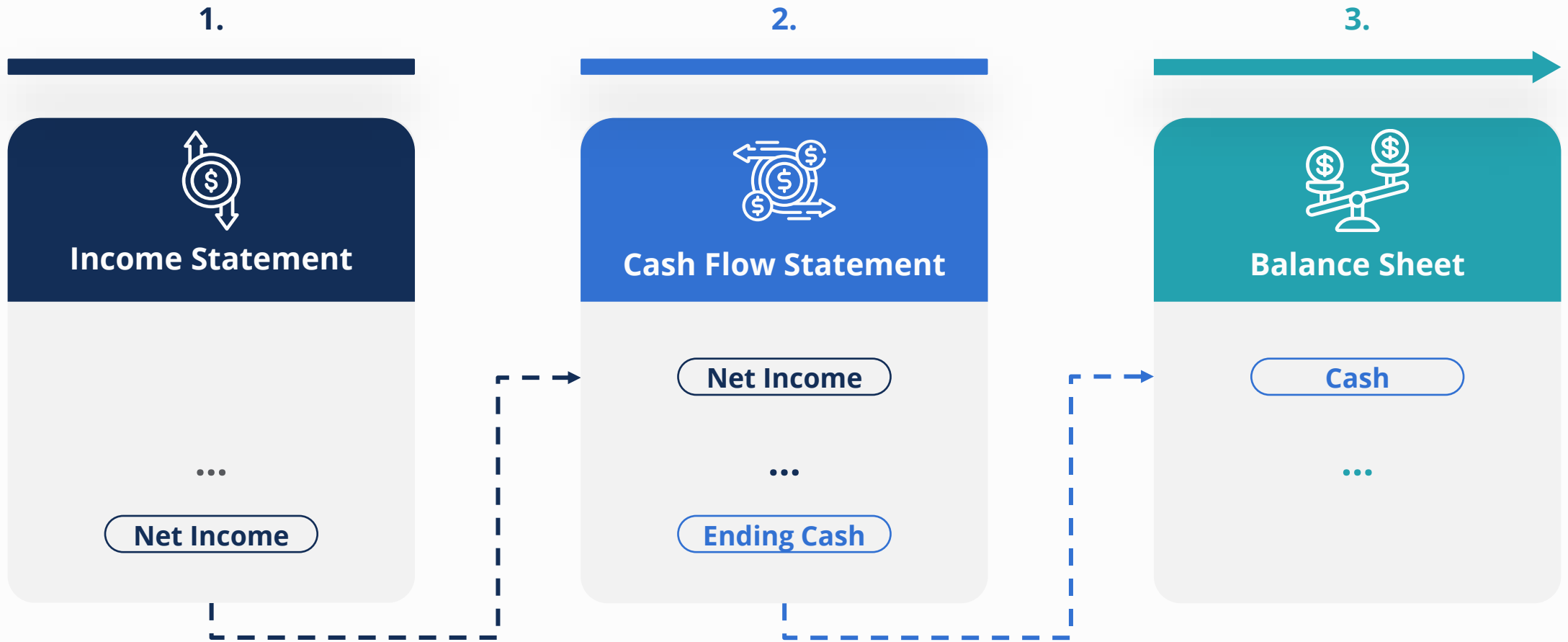
Cash Flow Statement

All figures in USD thousands	2023F	2024F	2025F
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Balance Sheet

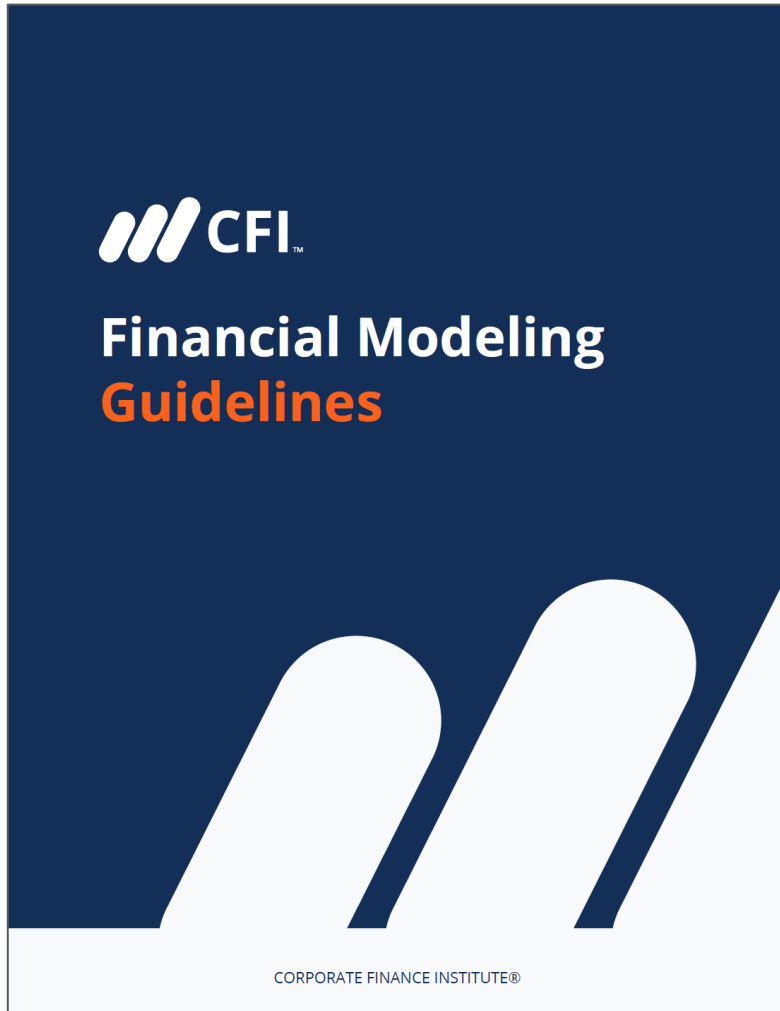
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Order of Preparing the Statements



Role of Finance Professionals

Financial Modeling Guidelines



Free to download



Over 95 pages

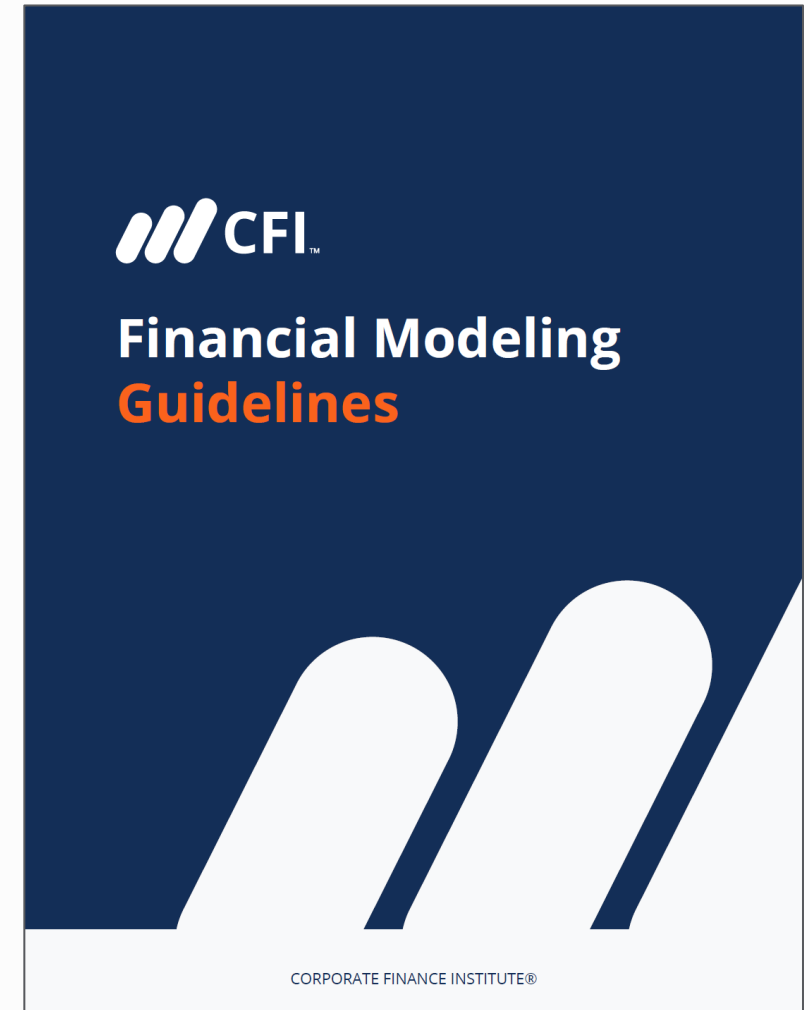


Covers financial modeling principles & standards

Financial Modeling Guidelines

Table of Contents

Introduction	03	Consistent Labeling	53
Design: Common Approach	08	Capitalization	54
Design: Preferred Approach	09	Transparency	58
Building Blocks	10	Positioning Precedents	59
Level of Detail	11	Corkscrews	62
Model Drivers	11	Waterfalls	65
Model Inputs	14	Debt & Equity Schedules	67
Layout & Printing	16	Financial Statements	68
Stacking Schedules	30	Circularity	70
Aligning Columns	31	Formatting	73
Freezing Panes	33	Font Types	75
Column & Row Consistency	34	Custom Number Formats	76
Periodicity	37	Font Colors	81
Modularity & Schedules	41	Marking Units	84
Navigational Columns	43	Naming	85
Row Grouping	46	Macros	88
Custom Views	48	Protection	88
Adding Indents	50	Resources	94



The Role of Financial Models

There are **two very important aspects** of financial models.



1. Decision-Making

Financial models are important tools in assisting us with complex decisions.



2. Communication

Financial models must be clear and easy for others to understand.



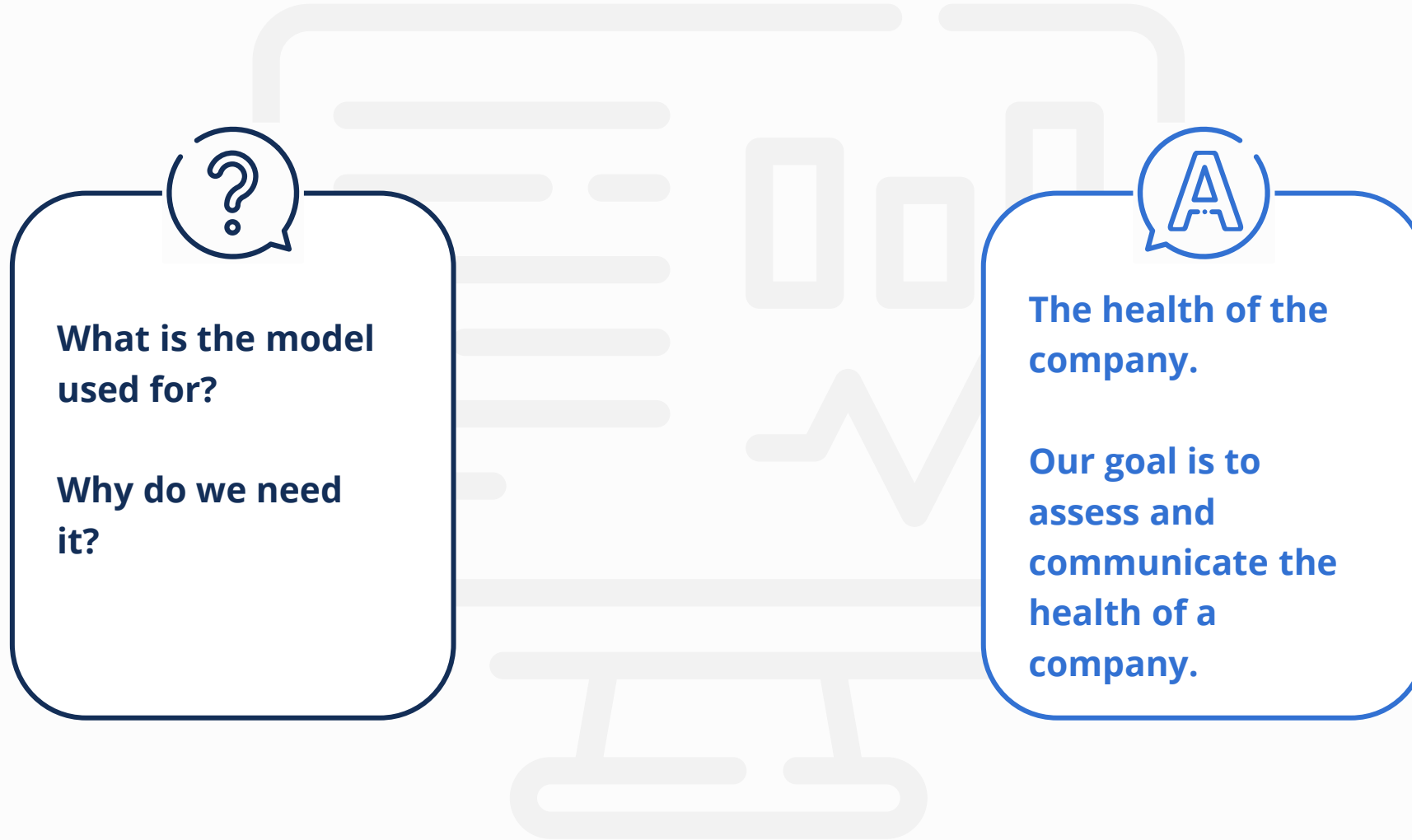
Model designers and builders need to **put the audience first.**



Decision-makers and stakeholders need to **quickly navigate to key information.**

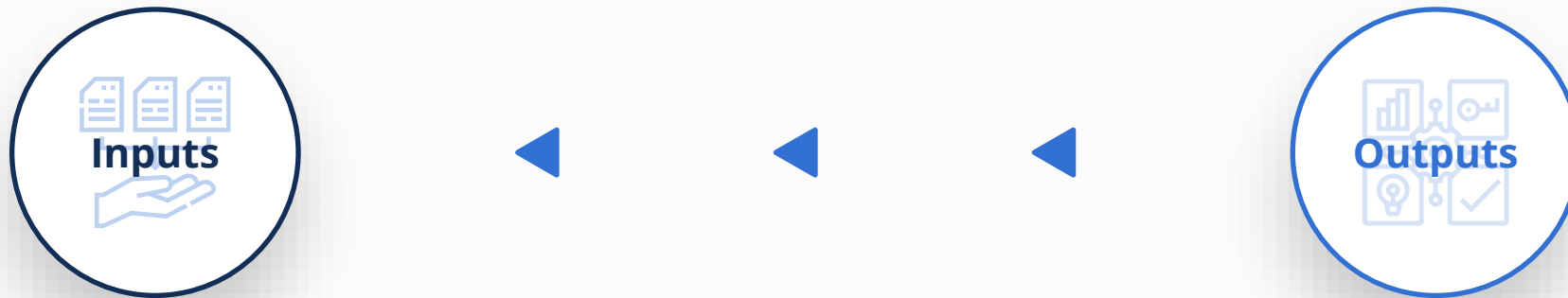
Reverse Model Design

Preferred Model Design



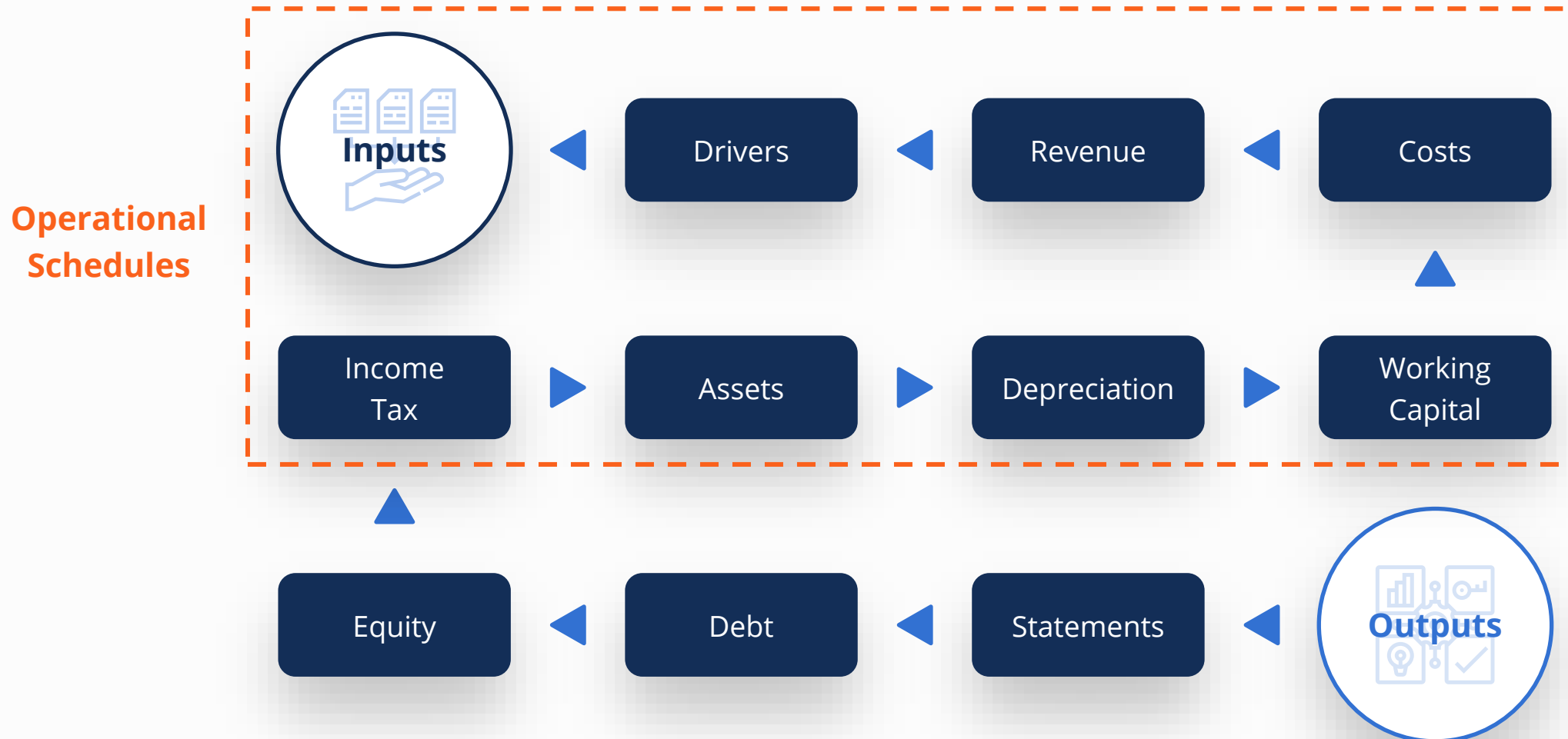
Preferred Model Design

We prefer to design in the reverse order and **start with the outputs, and we work backward to the inputs.**



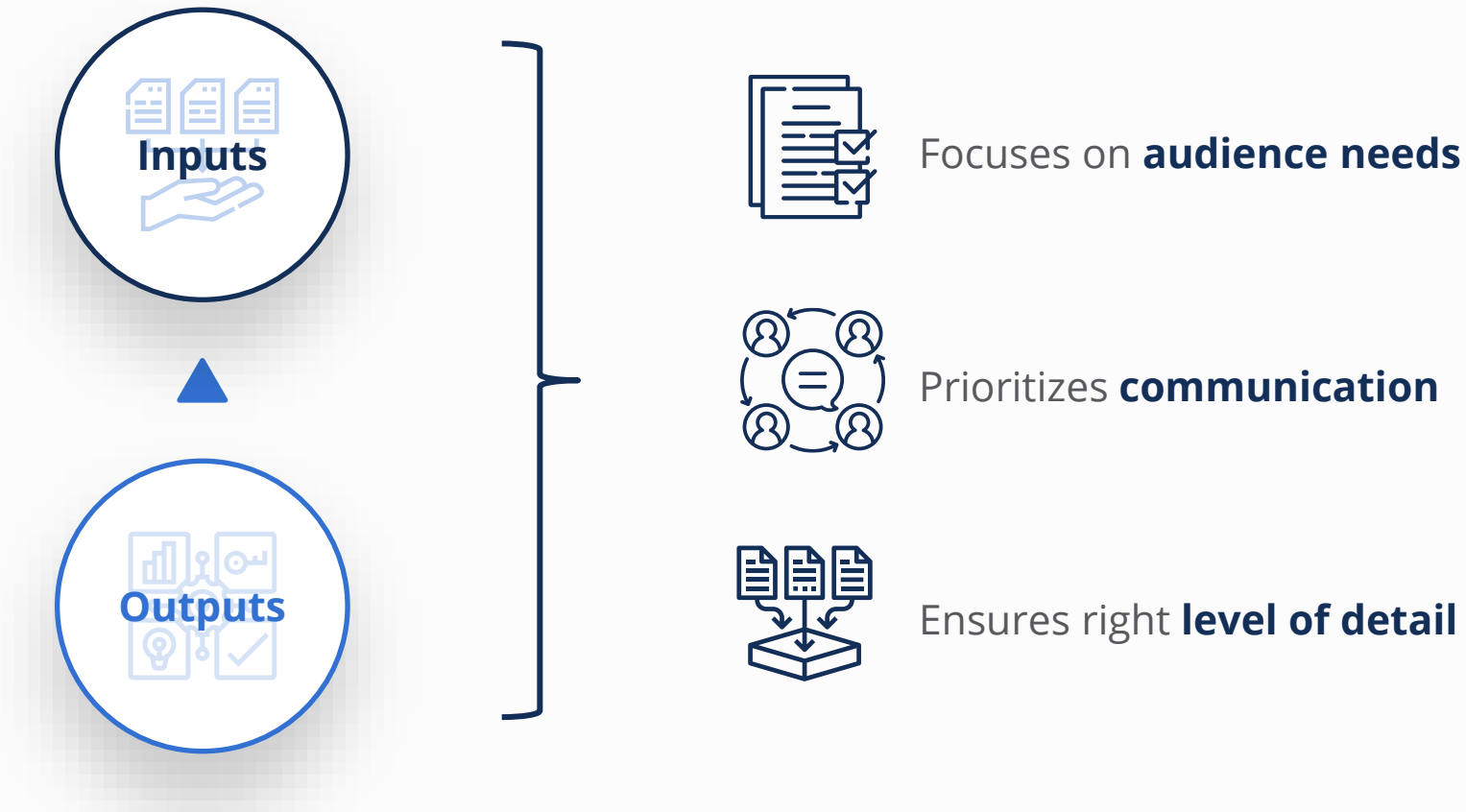
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Designing for the Audience

Preferred Model Layout

Next, we prioritize the schedules from a **communication perspective**.



Cover Page



Outputs



Inputs



Model

Preferred Model Layout



Cover Page

Cover Page



Outputs



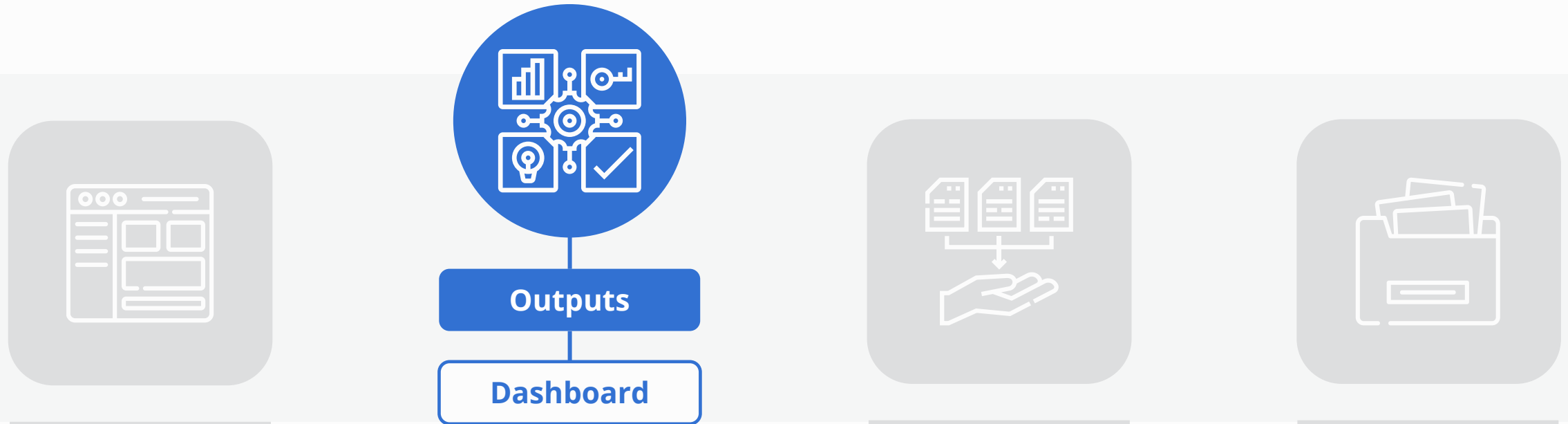
Inputs



Model

- Sets the **tone for the model**
- Communicates important **model information**

Preferred Model Layout



Cover Page

- Like an **executive summary**
- **Most important** information **right up front**

Inputs

Model

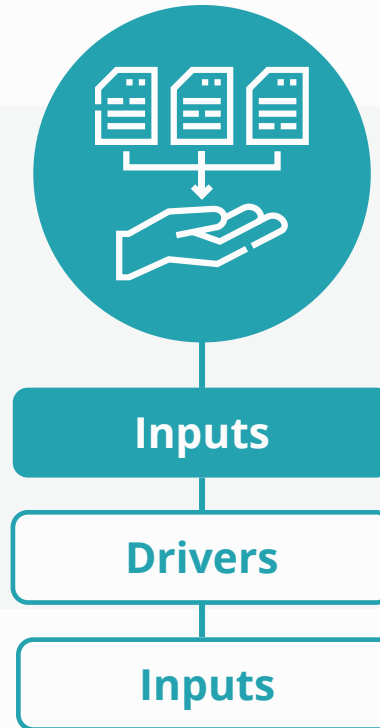
Preferred Model Layout



Cover Page



Outputs



Model

- **Identifies the critical inputs** that drive the model

Preferred Model Layout



Cover Page



Outputs



Inputs



Model

Statements

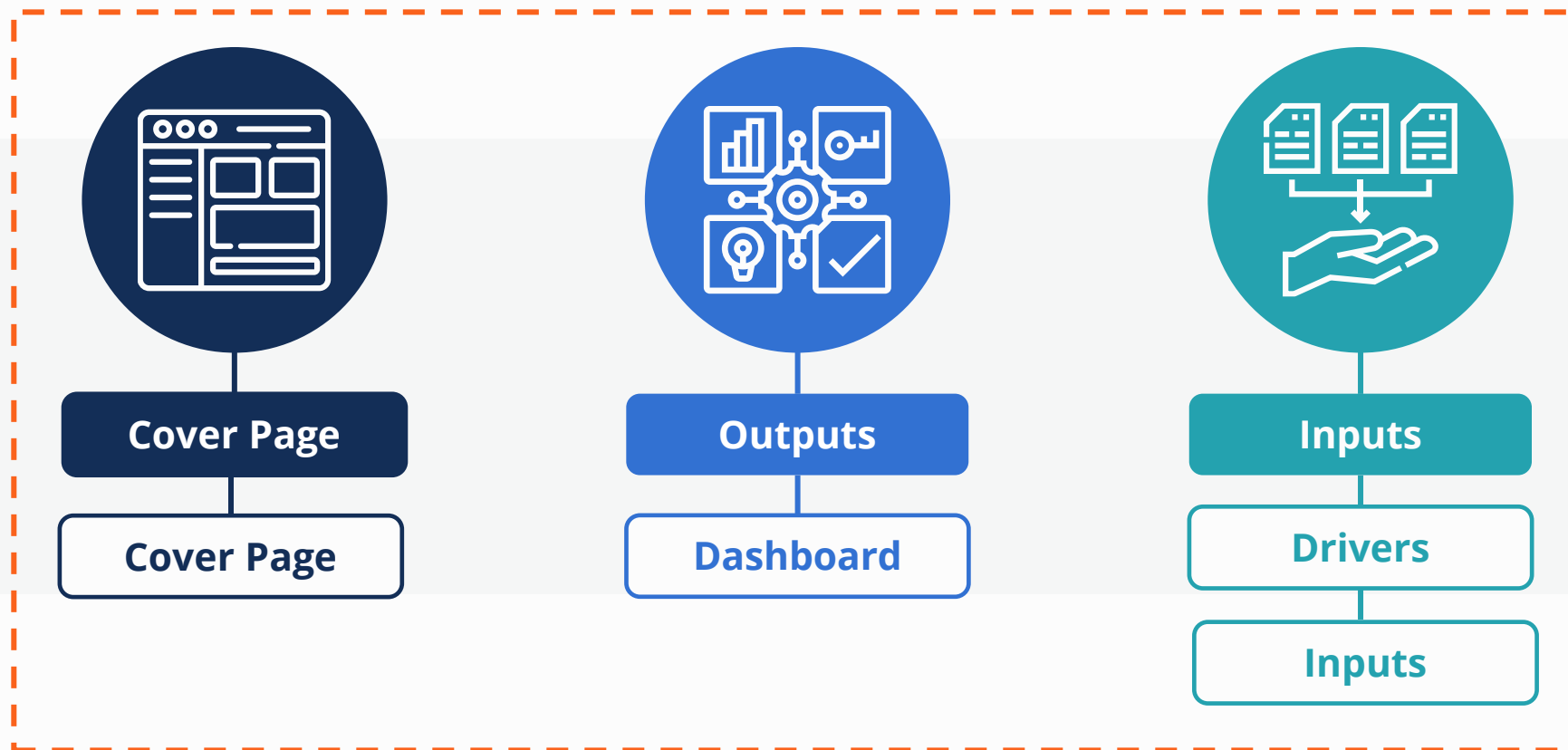
Operational

Structure

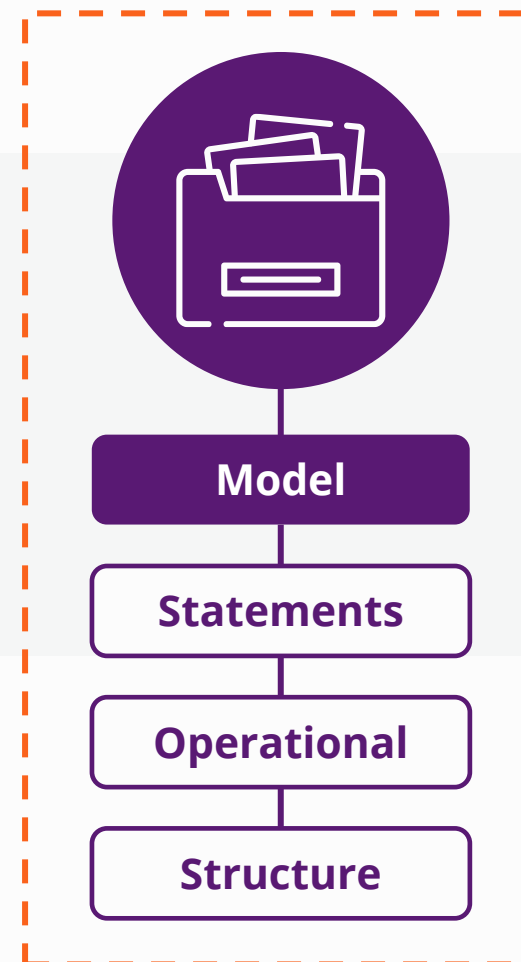
- This forms the **appendix**

Preferred Model Layout

Presentation

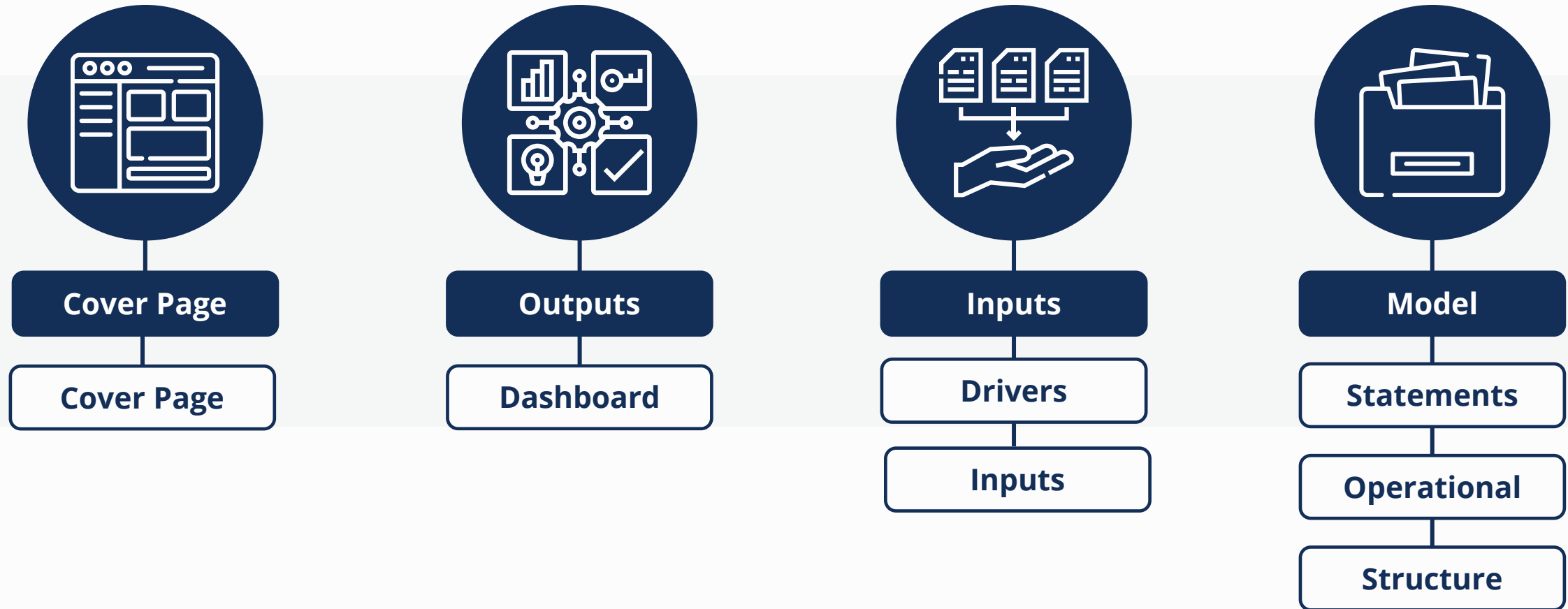


Appendix

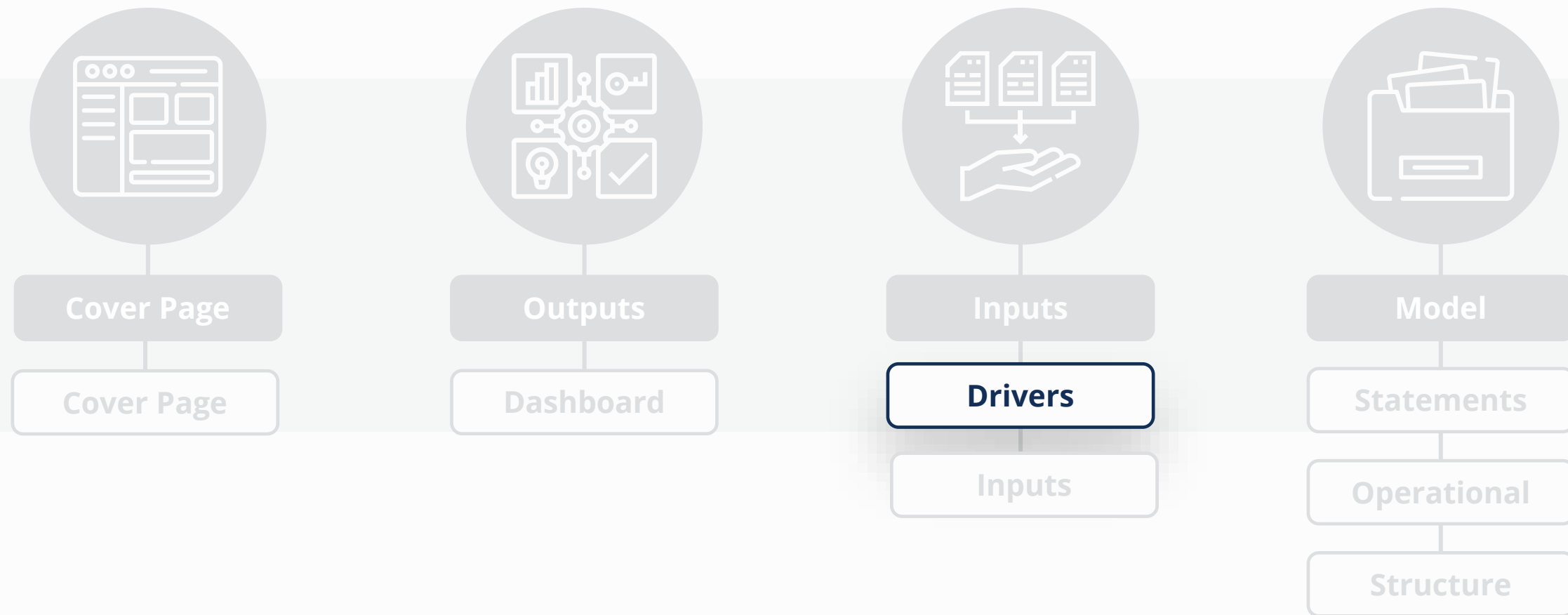


Defining Model Drivers

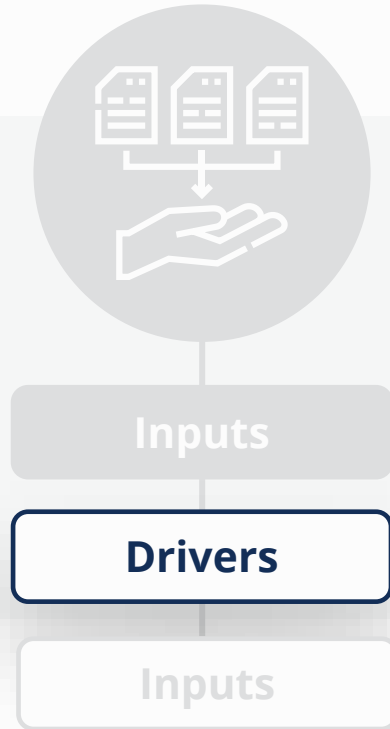
Model Design: Drivers



Model Design: Drivers



Model Design: Drivers



Model drivers are volatile and have a **significant impact** on model outputs.



We isolate the drivers so that we can **test how the model reacts** to them.



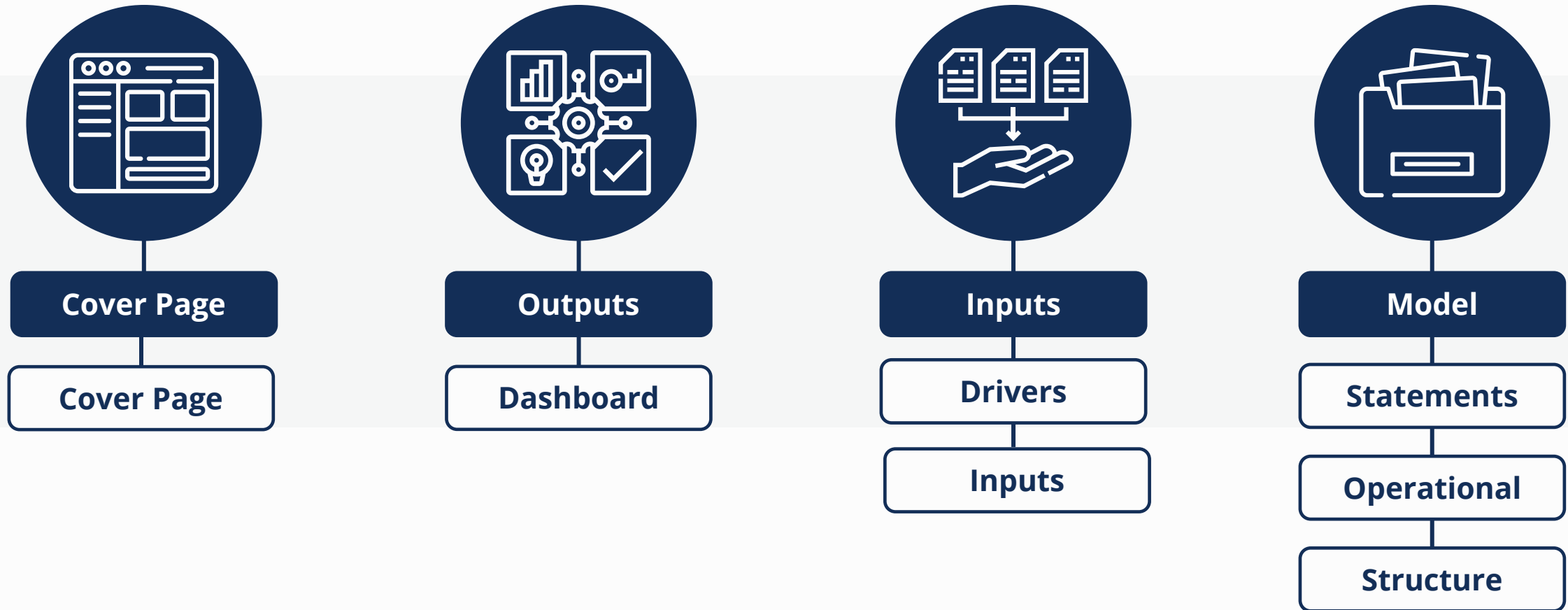
We need to **separate model drivers** from other less important inputs.



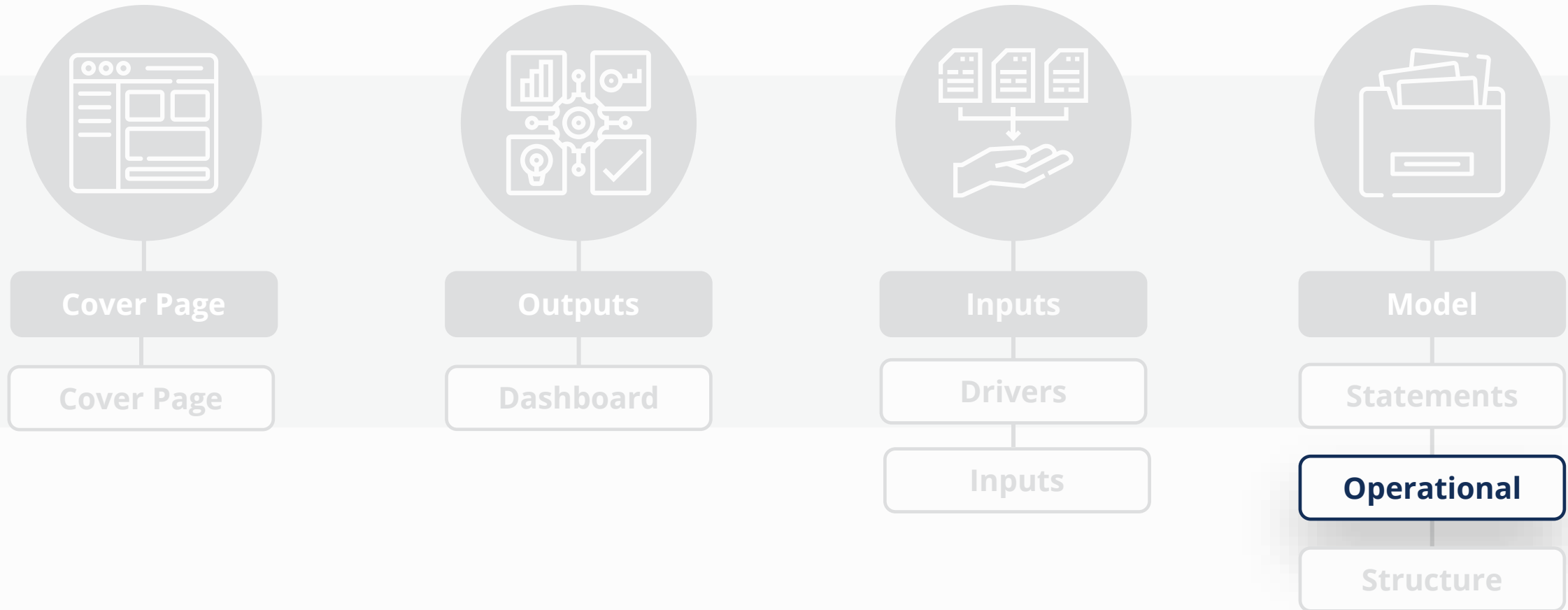
Identifying the drivers **requires detailed knowledge of the business.**

Overview of Schedules

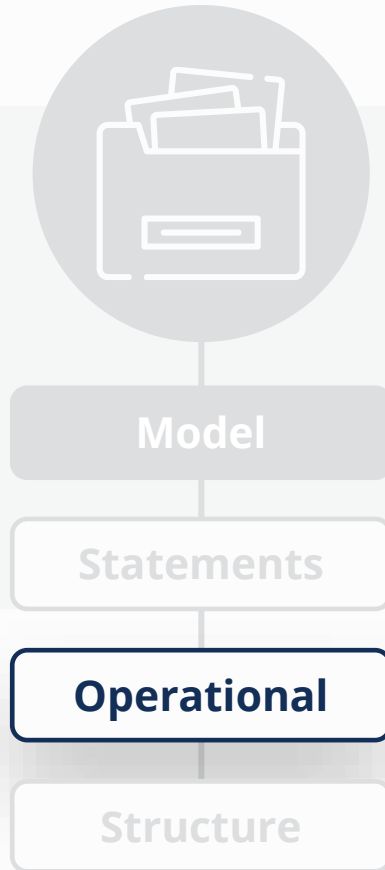
Model Design: Operational Schedules



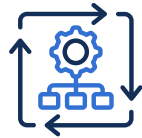
Model Design: Operational Schedules



Model Design: Operational Schedules



Operational schedules **give us insight into the foundational aspects** of the business.



It's very **difficult to change operational features** of a business.



Operational schedules are **one of the key aspects** that we need to review.

Operational Schedules



Revenue Schedule

Helps us understand exactly how the business generates its revenue



Working Capital Schedule

Shows us how the working capital items are moving (e.g., producing or consuming cash)



Asset Schedule

Helps us to track the PP&E needed to complete the balance sheet



Cost Schedule

Allows us to understand the mix of fixed and variable costs



Depreciation Schedule

Enables us to calculate depreciation for the income statement



Income Tax Schedule

Allows us to break out the current and deferred incomes taxes

Operational Schedules



Revenue Schedule

Helps us understand exactly how the



Working Capital Schedule

Shows us how the working capital items are moving



Asset Schedule

Helps us to track the PP&E



Check out the Operational Modeling Course to learn **the best way to build all of these schedules.**



Cost Schedule

Allows us to understand the mix of fixed and variable costs



Depreciation Schedule

Enables us to calculate depreciation for the income statement

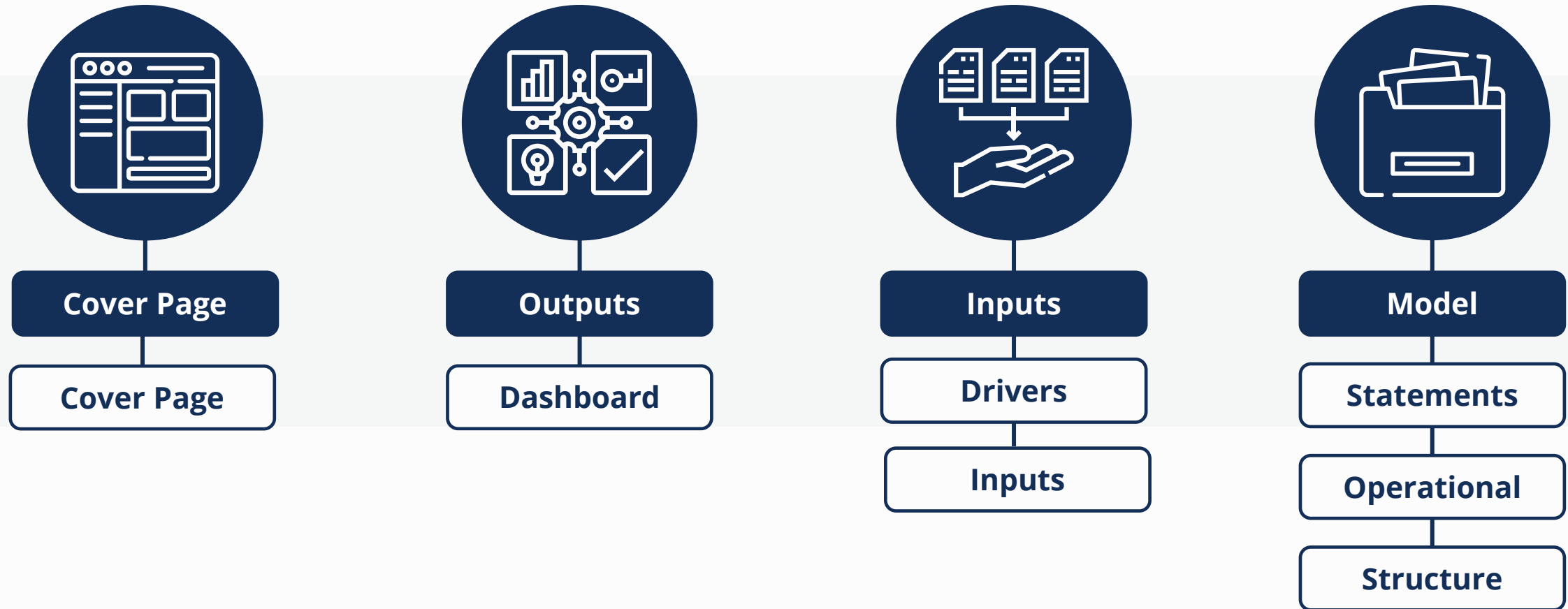


Income Tax Schedule

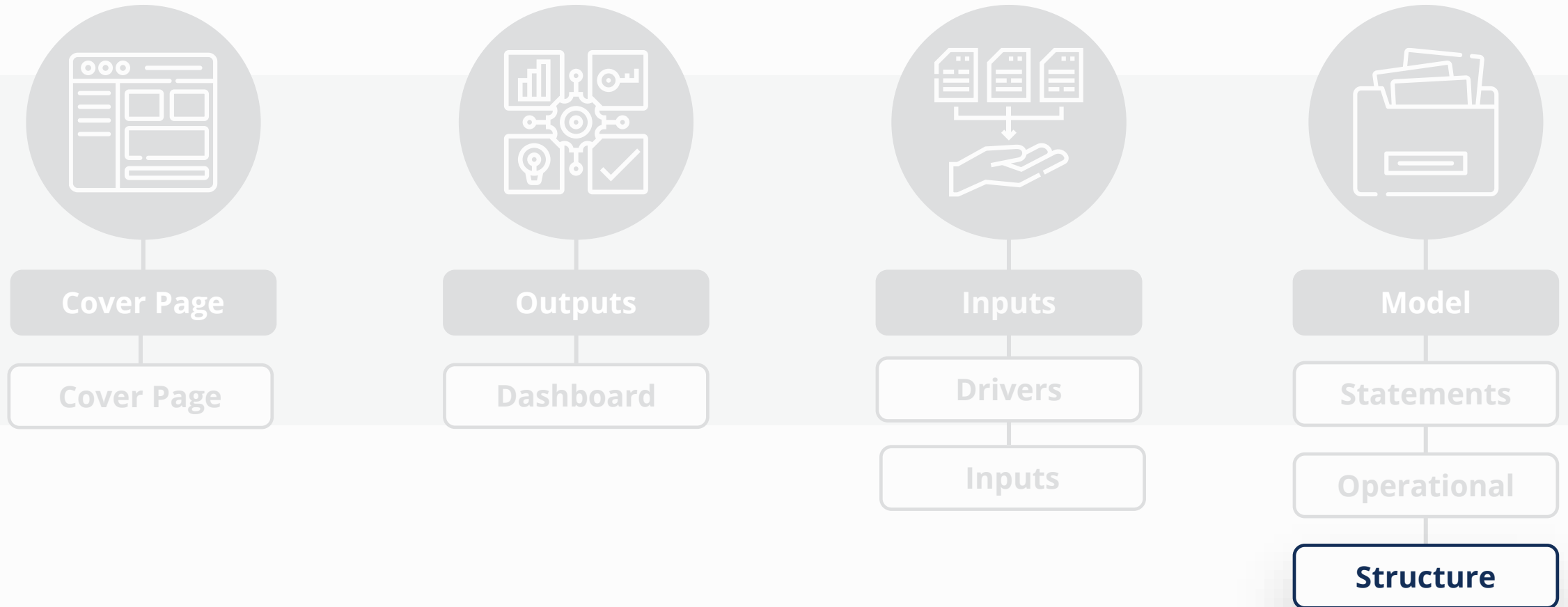
Allows us to break out the current and deferred incomes taxes

Overview of Capital Structure

Model Design: Capital Structure



Model Design: Capital Structure



Model Design: Capital Structure

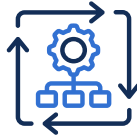


Model

Statements

Operational

Structure



It's very **difficult to change operational features** of a business.



Operational schedules are **one of the key aspects** that we need to review.



Operational schedules **give us insight into the foundational aspects** of the business.

What is a Capital Structure

Capital structure is simply **the mix of debt and equity a company is using to finance its business.**



Equity



100% Equity

The company is **not using any debt** to finance its operations.

What is a Capital Structure

Capital structure is simply **the mix of debt and equity a company is using to finance its business.**



WACC (Weighted Average Cost of Capital) is a concept we cover in a lot more detail in our **DCF Evaluation Modeling course.**

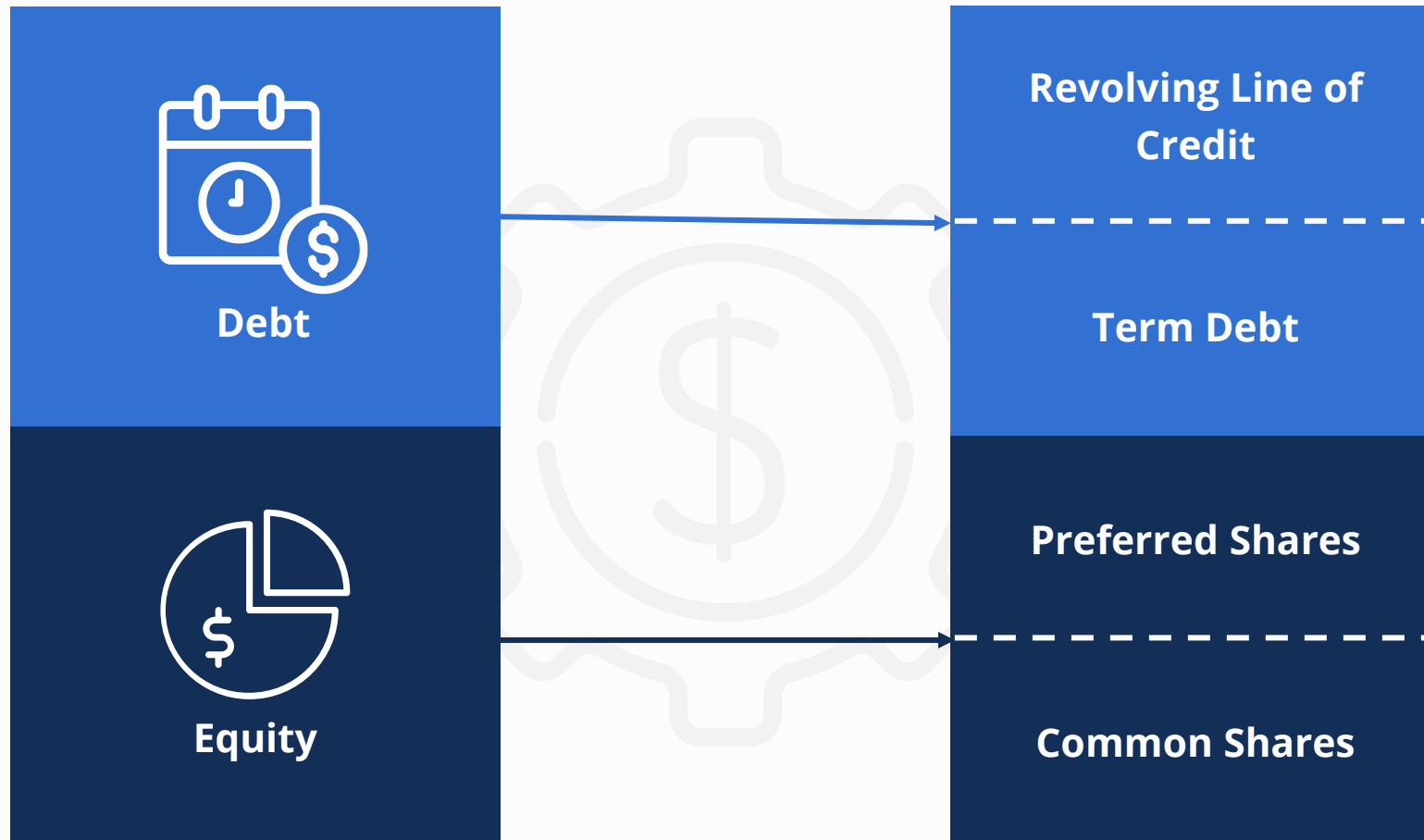


Equity

Debt financing is **usually a cheaper form of capital** than equity.

What is a Capital Structure

Capital structure is simply **the mix of debt and equity a company is using to finance its business.**



Using Corkscrews

Approach to Modeling a Capital Structure



The **capital structure can be one of the most difficult** parts of the model.

We prefer to **build operational schedules first** and then add capital structure.



Remember to **break the formulas down** into small components.

This enables people **to more easily understand** the model.



It is best to use a **consistent and logical structure** for the capital structure.

We use **corkscrews to track debt and equity**.

Using Corkscrews

Term Debt Schedule

All figures in USD thousands unless stated

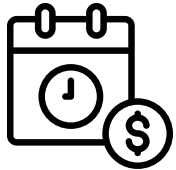
LONG TERM DEBT

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Beginning Balance		20,000	18,000	16,000	14,000	12,000
Increase / (Decrease)		(2,000)	(2,000)	(2,000)	(2,000)	(2,000)
Ending Balance	20,000	18,000	16,000	14,000	12,000	10,000
Interest Rate		6.0%	6.0%	6.0%	6.0%	6.0%
Interest Expense		1,140	1,020	900	780	660

In many situations, we can pull this value directly from the **company's balance sheet**.

Optimal Order for Debt & Equity Schedules

We generally will default to the **order of seniority** for the schedules.



Debt Schedules

Include cash to get interest income and then calculate **net interest expense**.



Equity Schedules

Equity schedules usually include a section for **retained earnings** as well.



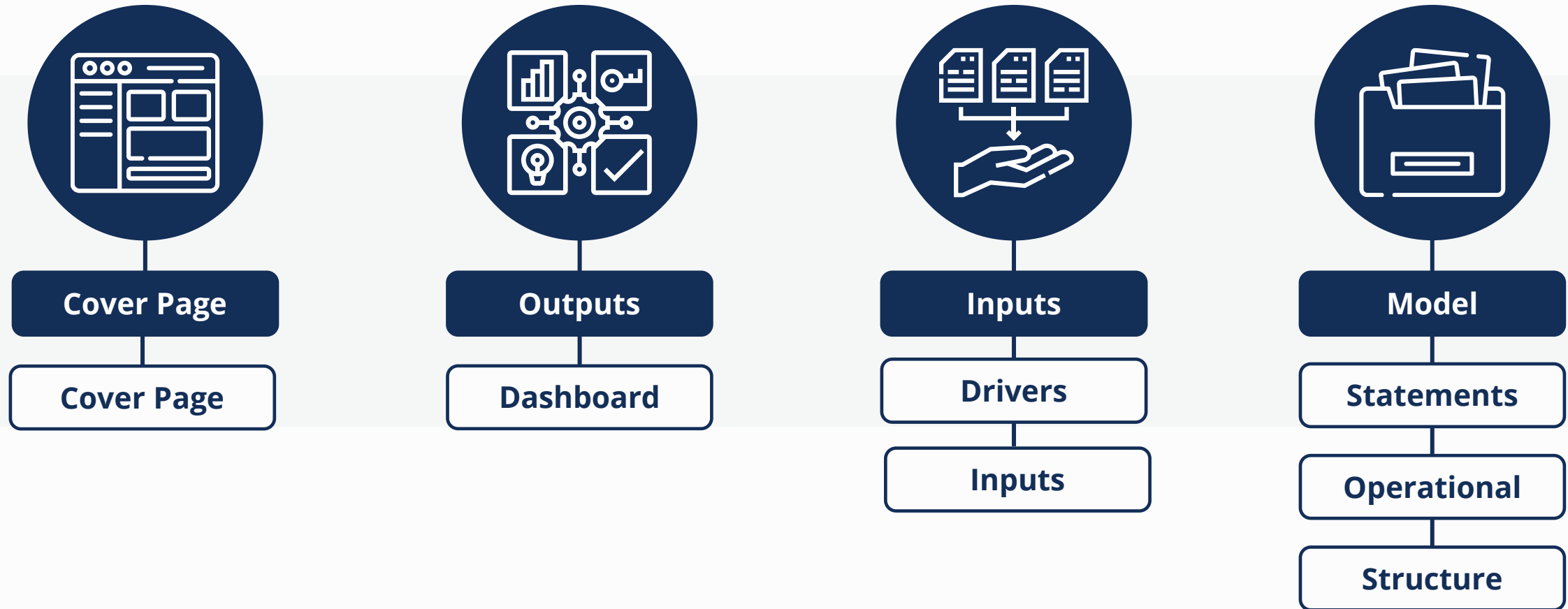
We may deviate from this order if there is a capital structure with **discretionary debt repayments**.



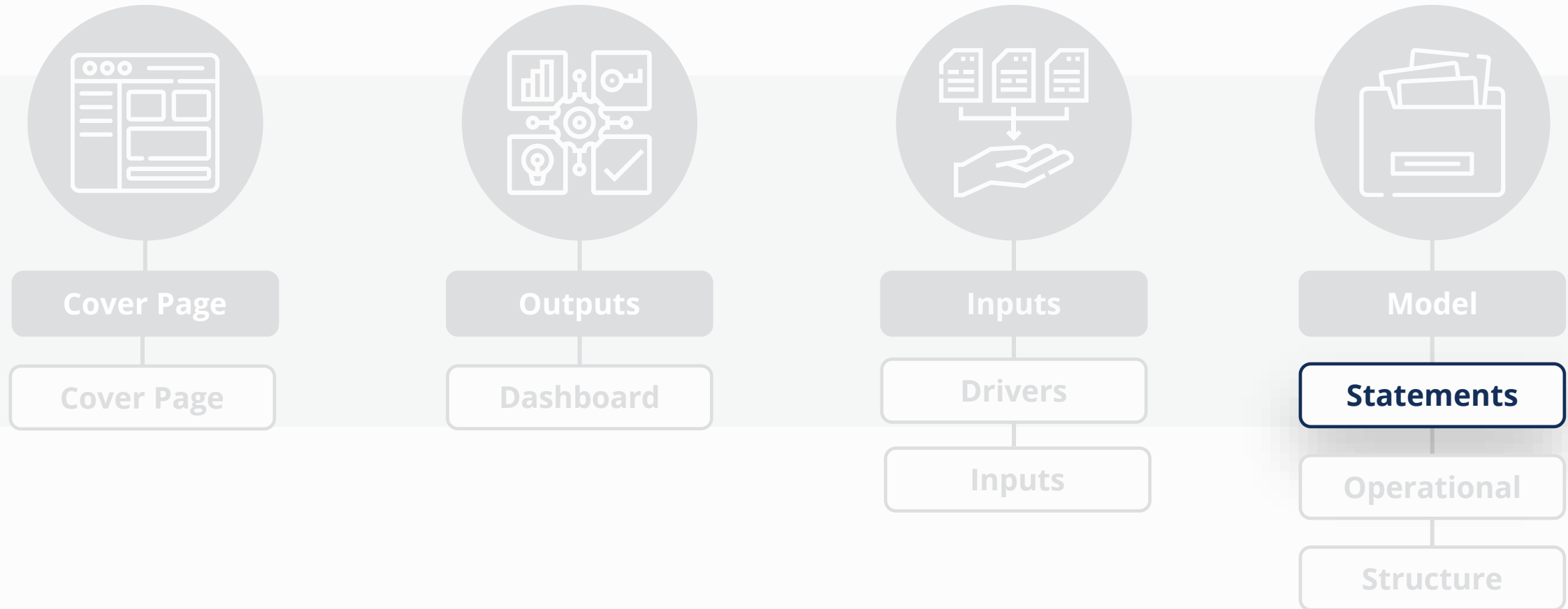
To learn more about discretionary debt repayments, check out our **LBO Modeling course**.

Error Detection & Excel Settings

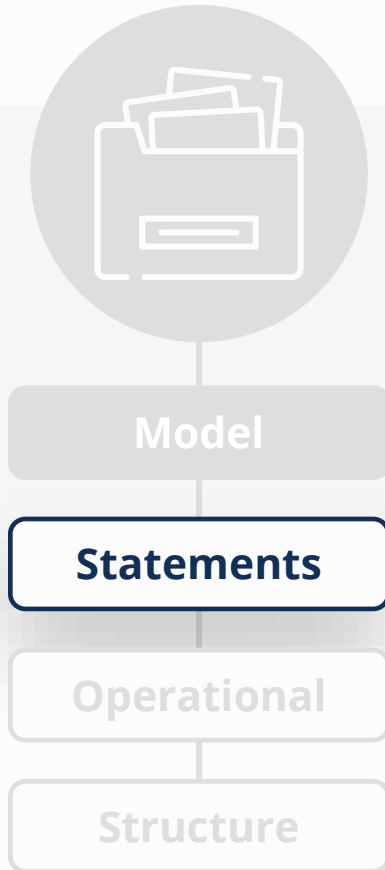
Model Design: Financial Statements



Model Design: Financial Statements



Model Design: Financial Statements



We do all our **complex calculations** in the operational and capital structure schedules.



This means that our financial statements mostly just include **links to other schedules**.



This systematic approach makes our models **easier to link and balance**.

Error Detection System



Balance Sheet

Assets = Liabilities + Equity



Although it can be frustrating, an **unbalanced balance sheet is useful.**



An unbalance **signals there is an error somewhere** that needs to be addressed.



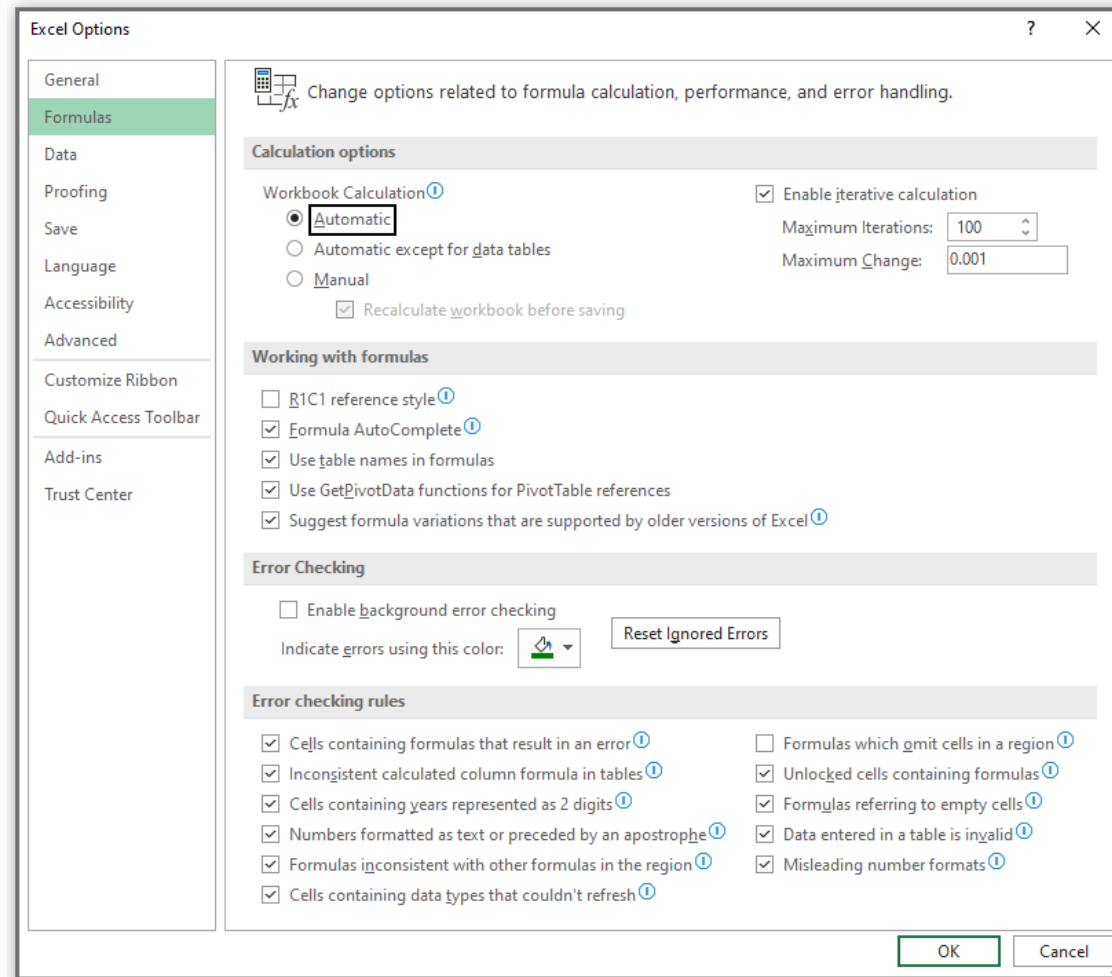
Balance sheets are useful in that they work as an **error detection system.**



It is **never recommended** to link financial statements, so they always balance.

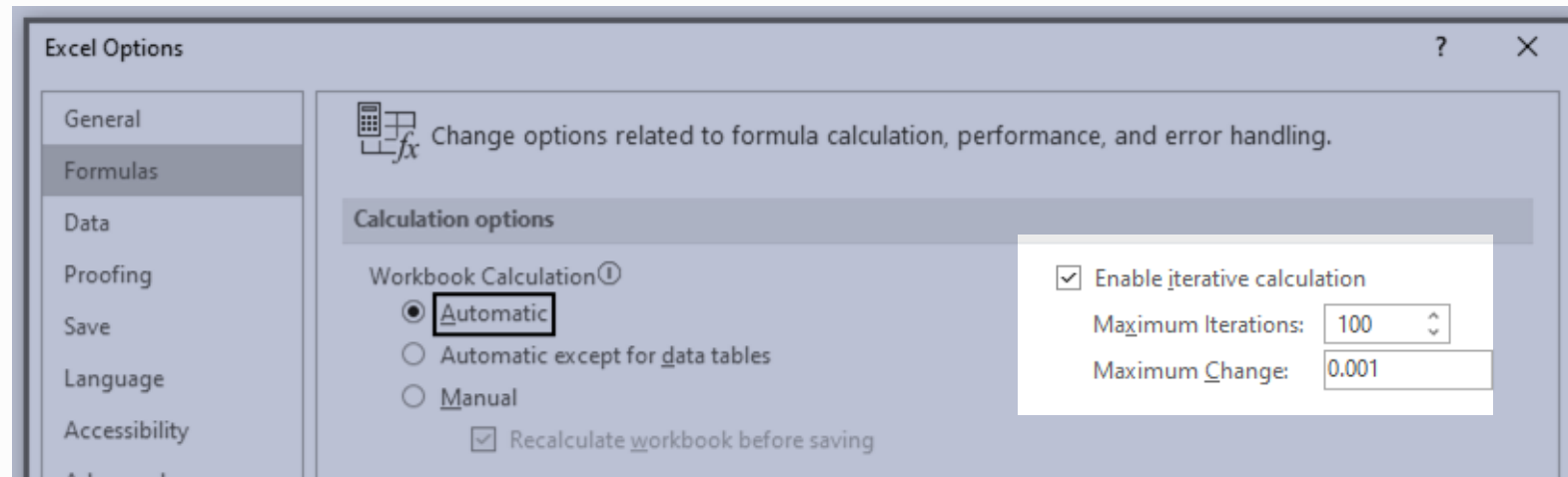
Calculation Options in Excel

Excel can perform **iterative or circular calculations**.



Calculation Options in Excel

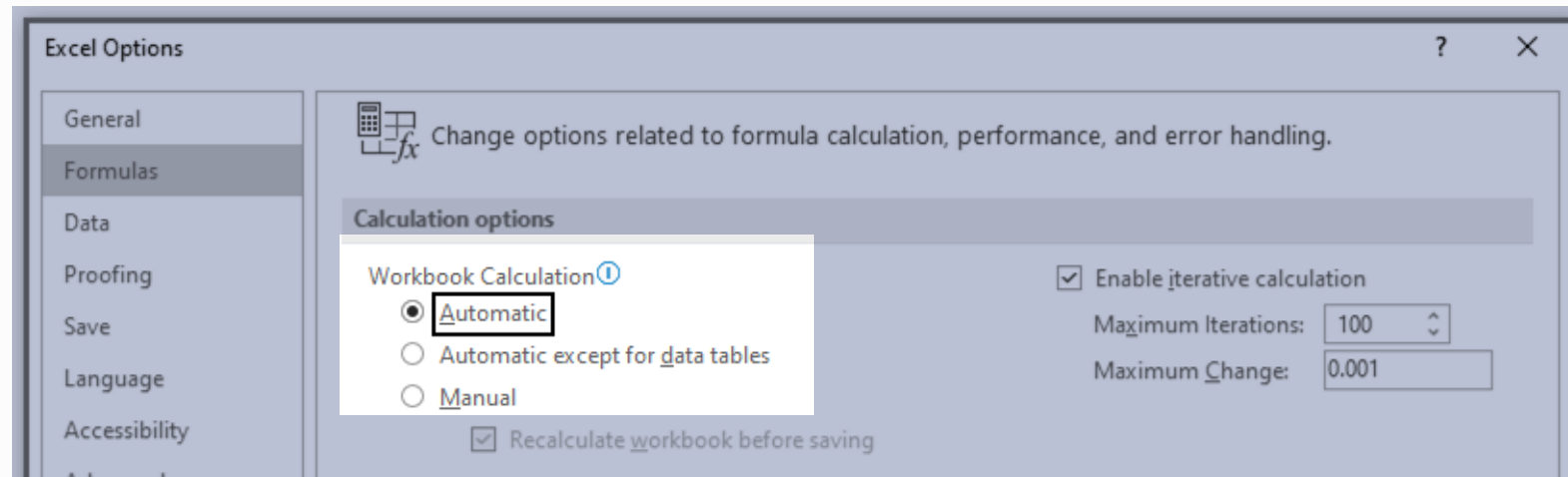
Excel can perform **iterative or circular calculations**.



1 Make sure that **iterative calculations are enabled**.

Calculation Options in Excel

Excel can perform **iterative or circular calculations**.



- 1 Make sure that **iterative calculations are enabled**.
- 2 Set the **workbook calculations to automatic**.

Revolver Overview

Revolving Line of Credit



A Revolving Line of Credit is also called: **Revolver, Line of Credit, Operating Line, or Bank Line**



Even if a company doesn't have a revolver, **one should still be included** in the model



Since our model currently has a negative cash balance, we know it **needs to get cash from the revolver**



A revolver is a **flexible piece of debt** that can be used when it's needed by a company



The revolver acts as a **lender of last resort** if the model needs cash



Cash needs to be paid back as soon as the company is able. This is called a **cash sweep mechanism**

Overview of Circularity

Circularity



Circularity can be quite a **controversial topic** in the financial modeling community.



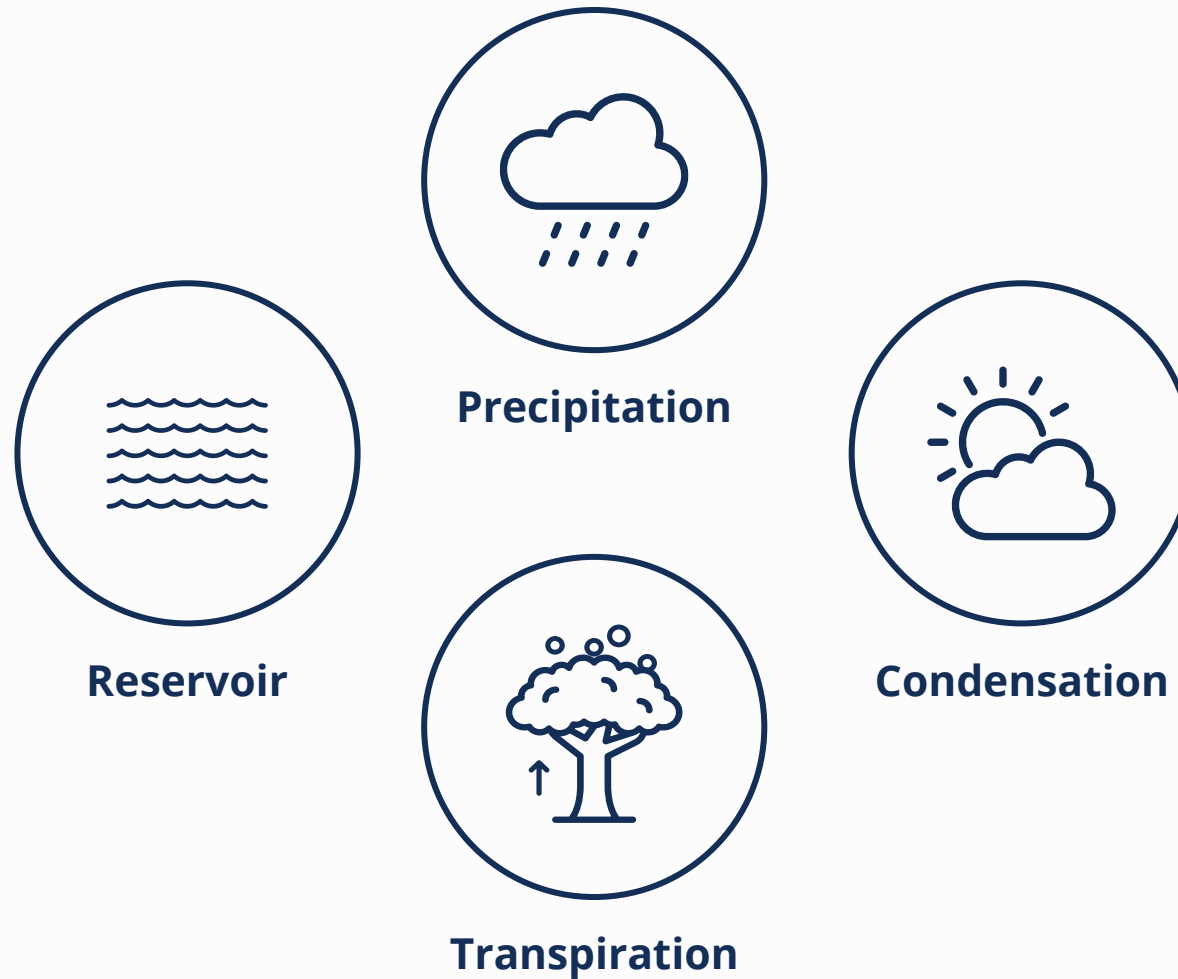
Excel can actually do two types of calculations: **linear calculations** and **circular calculations**.



In order to do circular calculations, we need to **set a particular setting in the software** (see Error Detection & Excel Settings in Financial Statements).

Linear Calculations

Let's think about **linear calculations** and use the **example of the water cycle to demonstrate**.



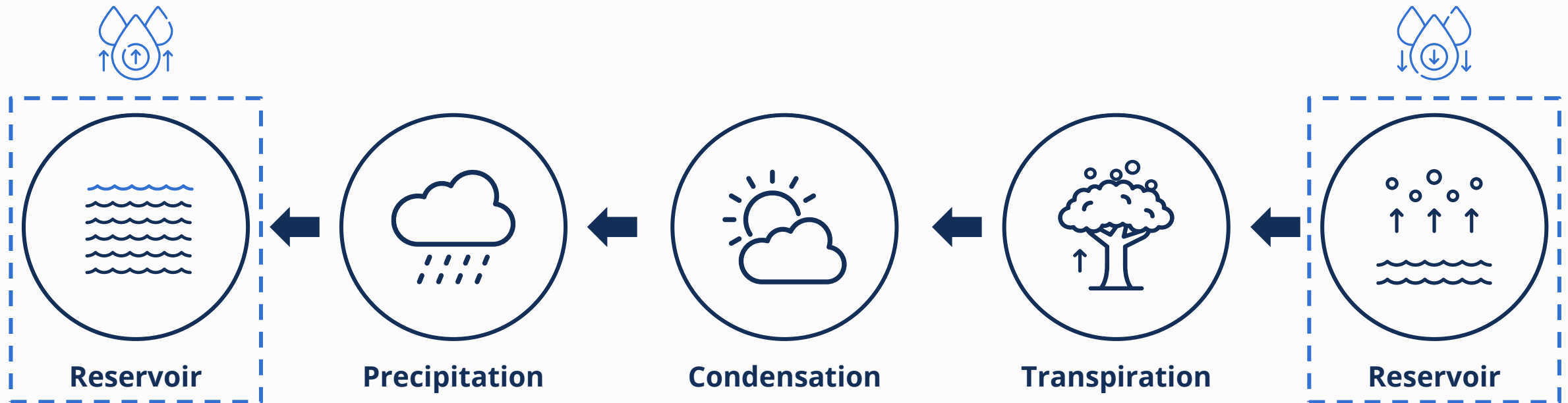
Linear Calculations

Let's think about **linear calculations** and use the **example of the water cycle to demonstrate**.



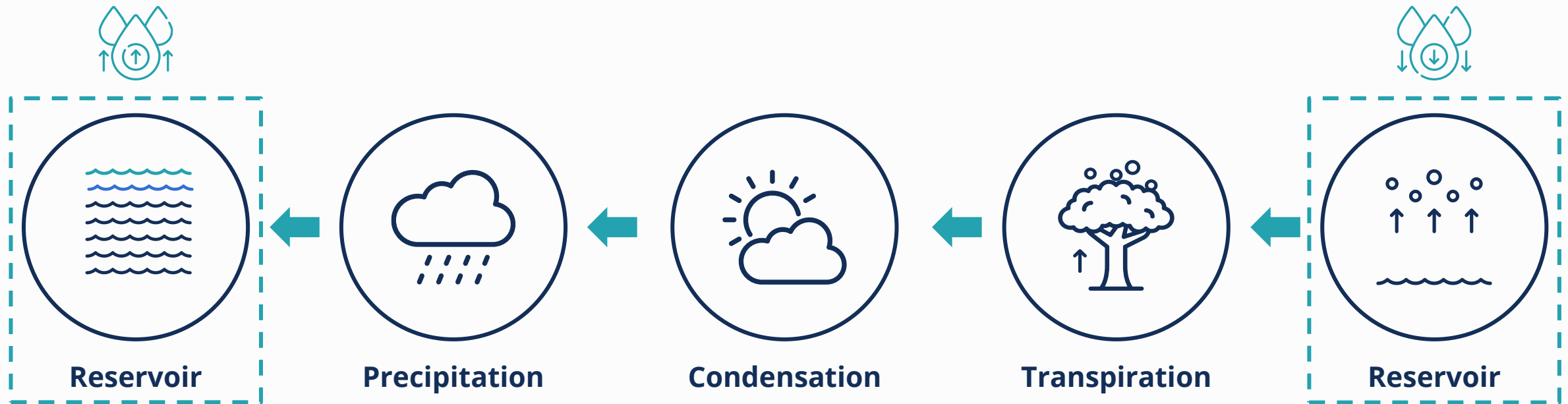
Linear Calculations

Let's think about **linear calculations** and use the **example of the water cycle to demonstrate**.



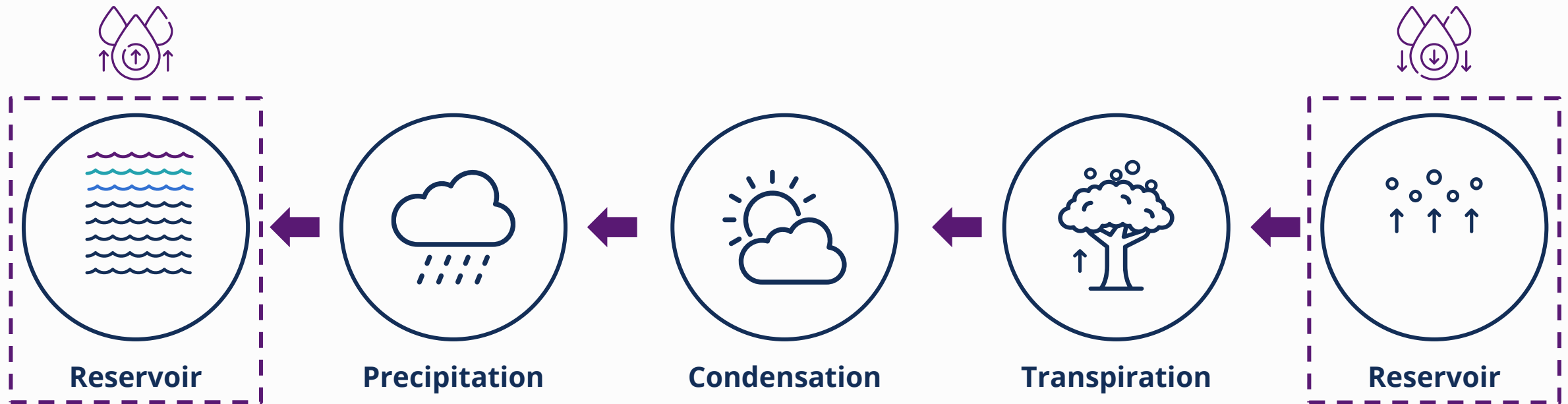
Linear Calculations

Let's think about **linear calculations** and use the **example of the water cycle to demonstrate**.

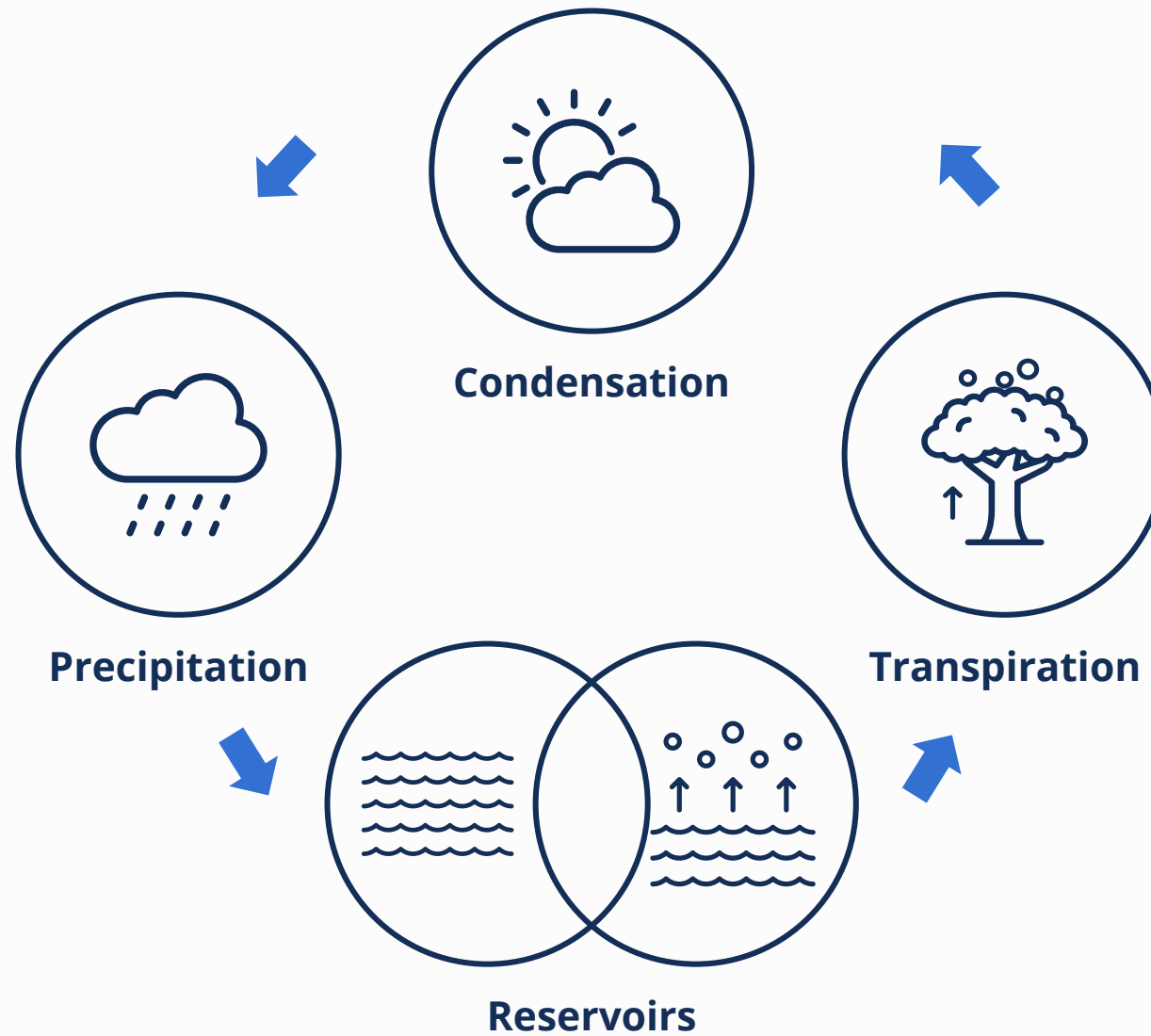


Linear Calculations

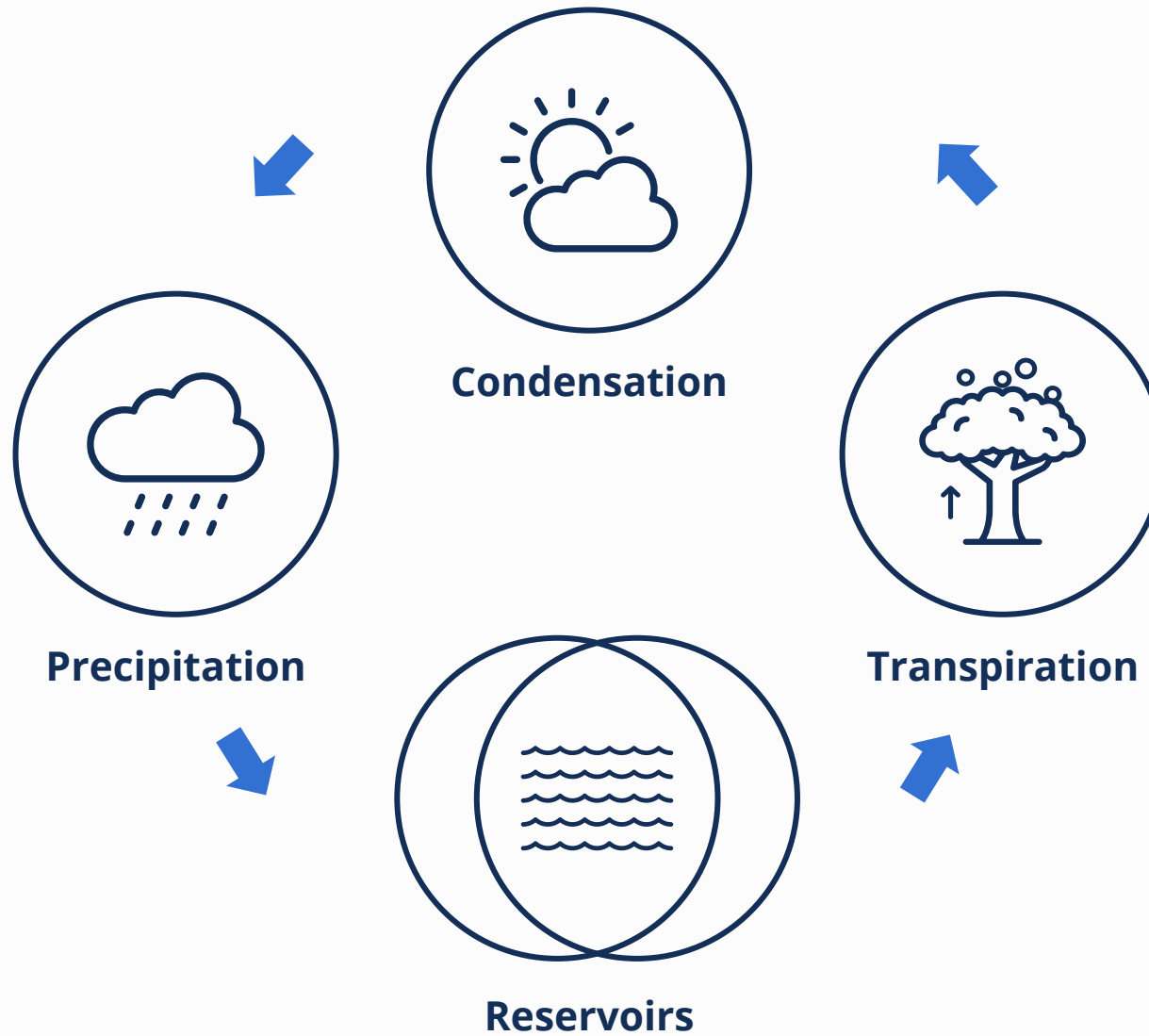
Let's think about **linear calculations** and use the **example of the water cycle to demonstrate**.



Linear Calculations



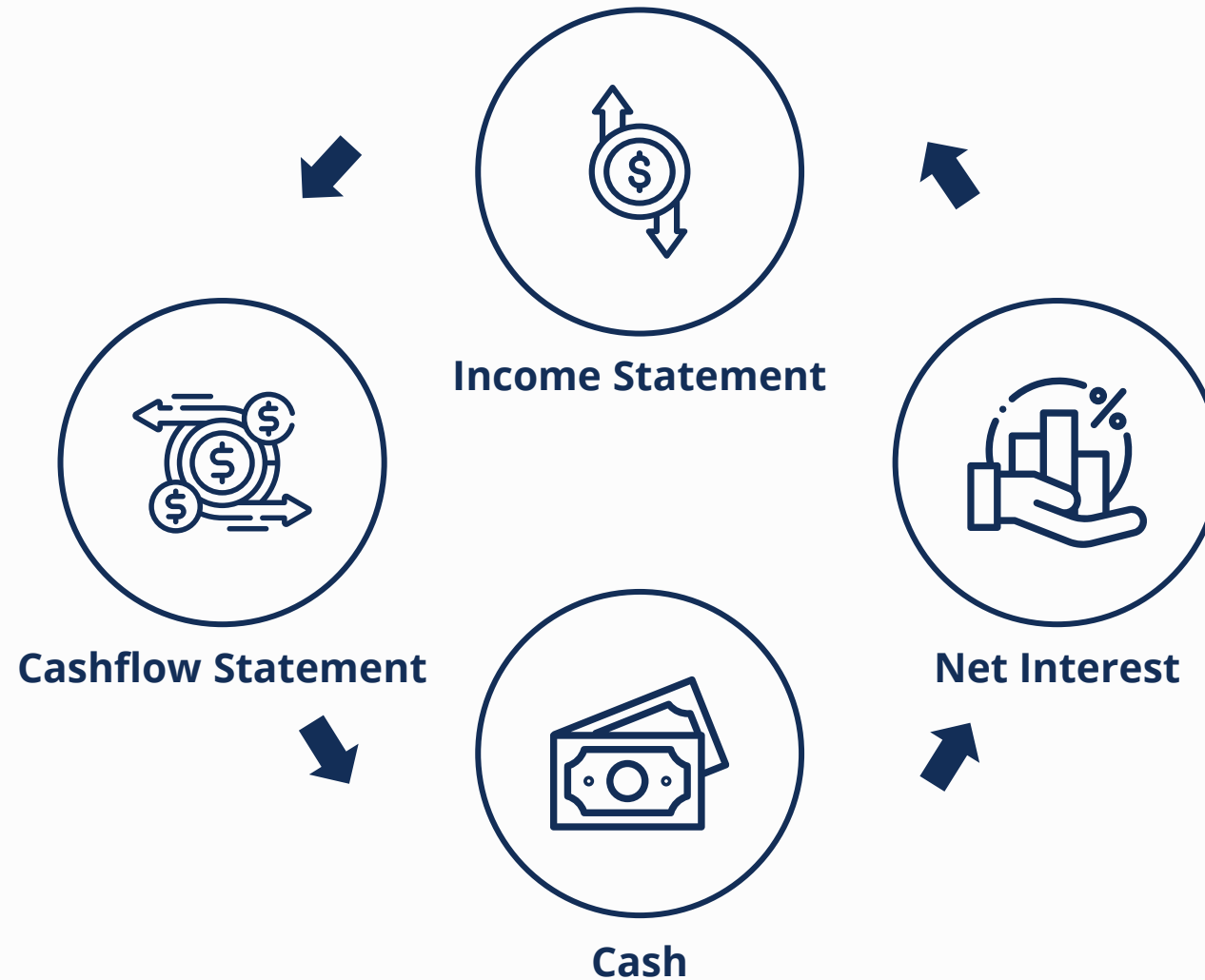
Linear Calculations



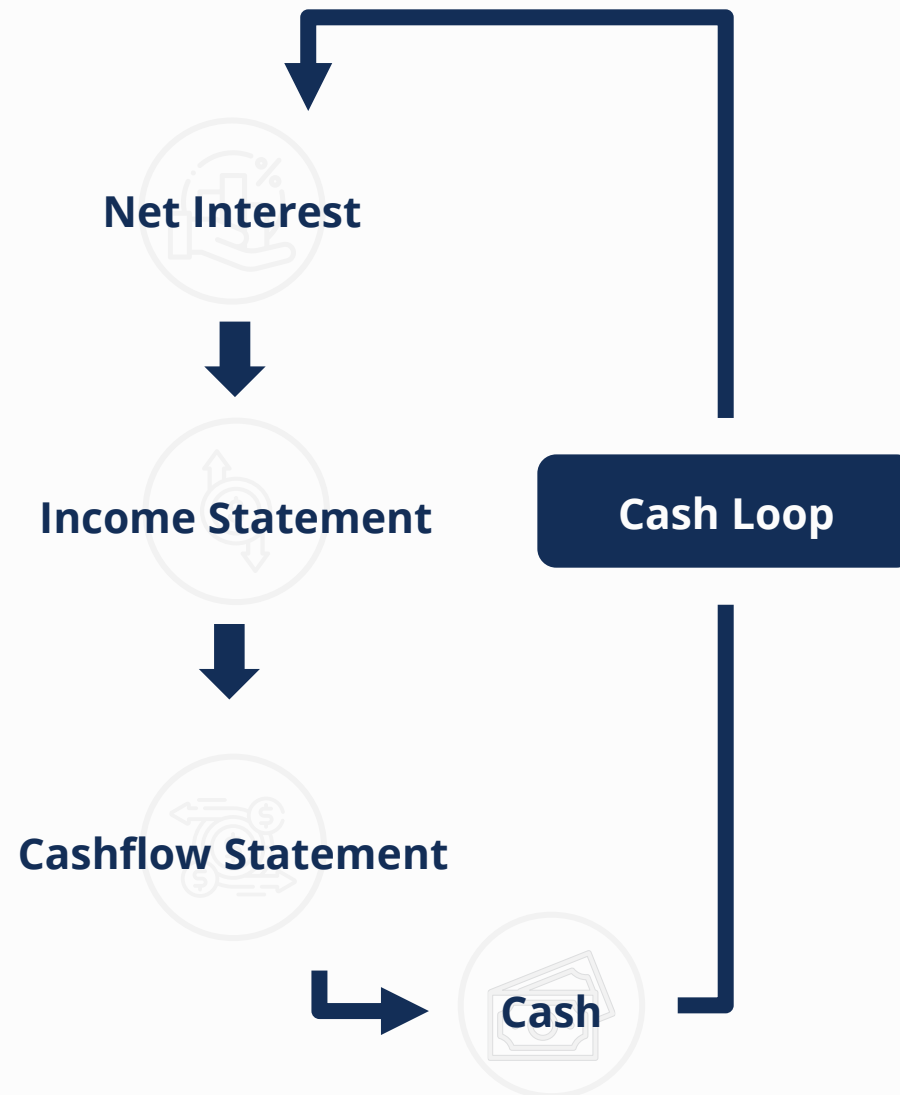
Financial Model Circularity

Linear Calculations

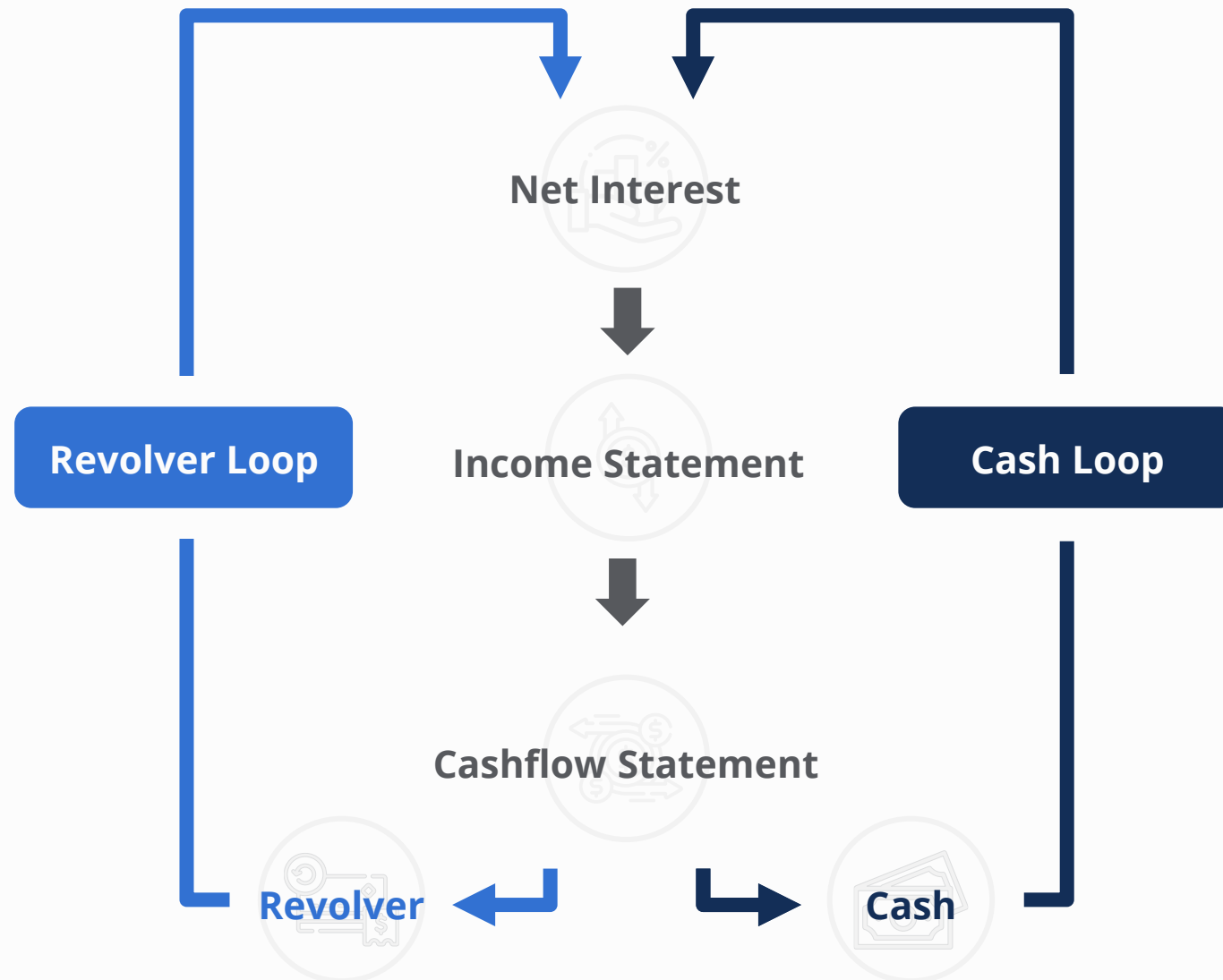
Let's think about where **circularity** occurs in a financial model.



Two Circular Loops in This Model



Two Circular Loops in This Model



Our View & Approach to Circularity



Advantages

Models can be more accurate when they are circular in nature.

Model Obstacles

- Circular models can **crash** if the circularity is turned on.
- Model users may **not understand** circularity or how to control it.
- Error messages may pop up for users depending on **calculation settings**.



Our View

Model accuracy is the most important aspect, and risks can be mitigated.



Educate the individuals building the models about circularity.



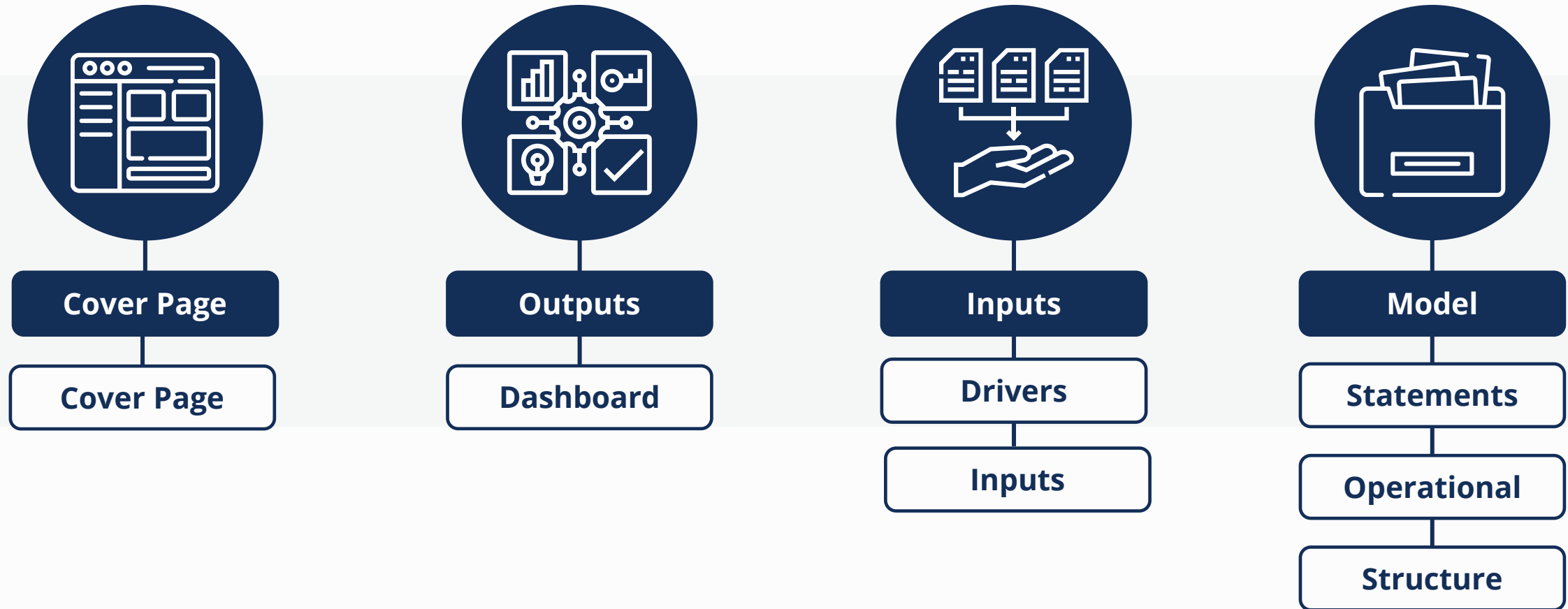
Include a **circularity switch** on all circular financial models.



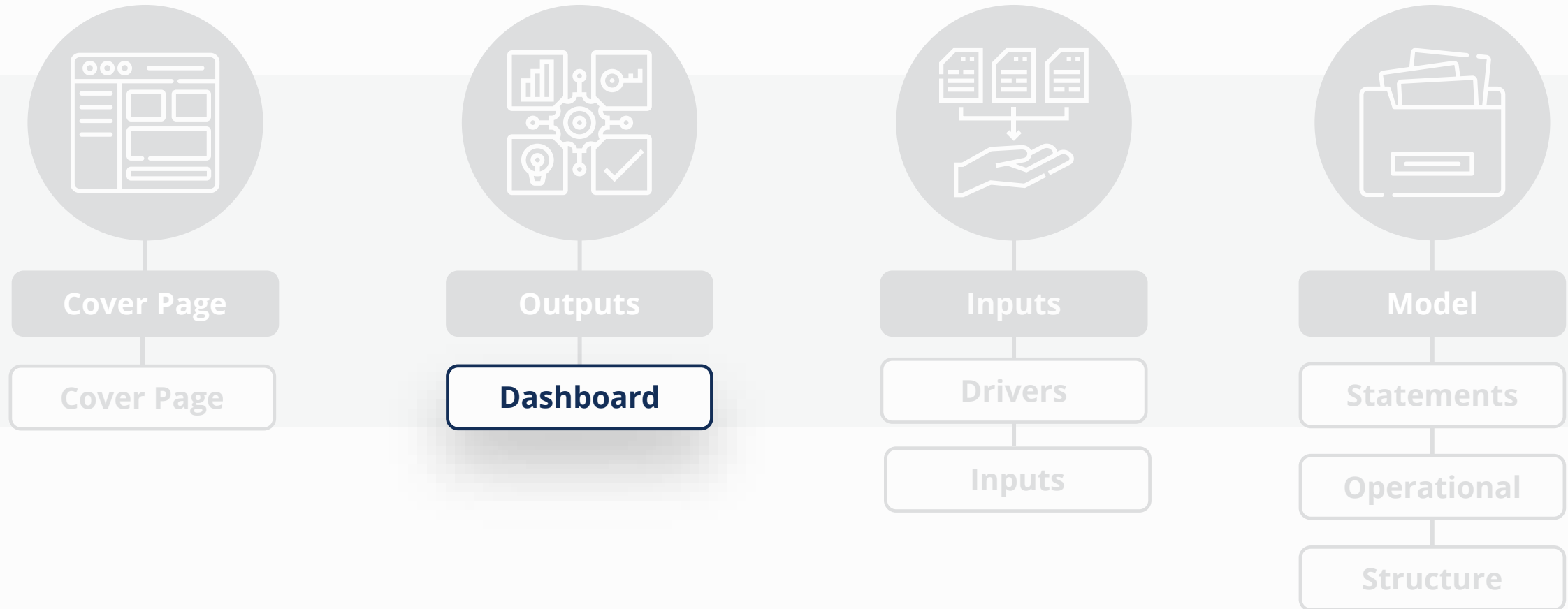
Add very clear and prominent **footnotes** about Excel settings that are needed.

Importance of Dashboards

Model Design: Financial Statements



Model Design: Financial Statements



Model Design: Financial Statements



Outputs

Dashboard



The dashboard is **critically important** since the audience will focus on it.



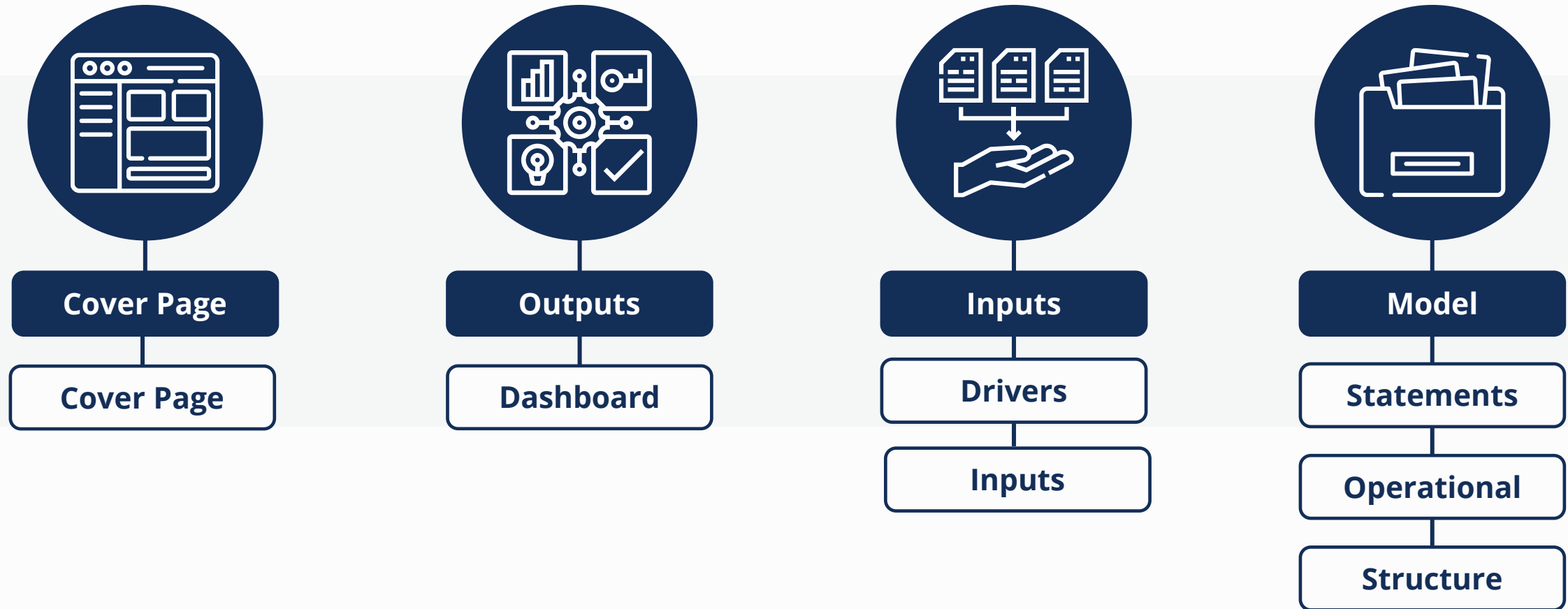
Senior leaders may not load the model in Excel and will likely focus on the **dashboard**.



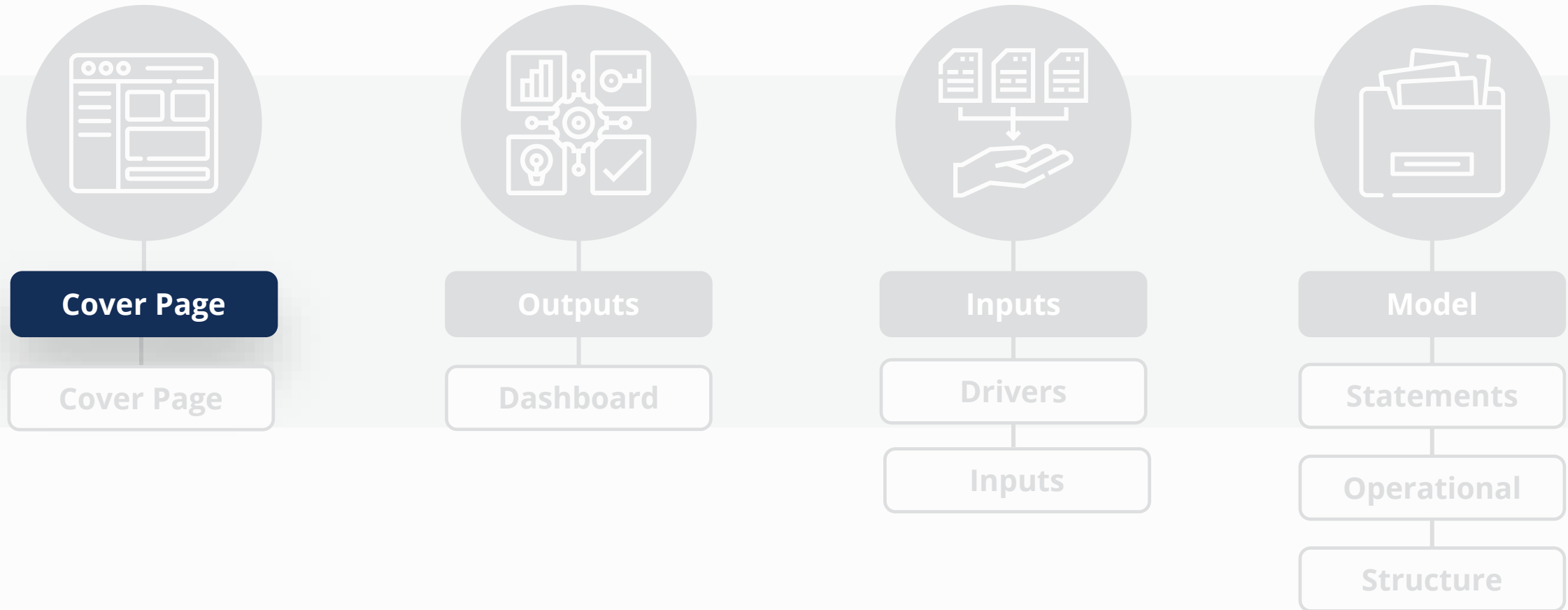
We need to make sure that it clearly communicates all **important information**.

Using Model Checks

Model Design: Financial Statements



Model Design: Financial Statements



Model Design: Financial Statements



Cover Page

Cover Page



The **importance of the cover page** should not be overlooked in a model.



The cover is the first page the audience sees, and it helps to **establish credibility**.



It positions the model as a formatted **financial presentation** to the audience.



It also instills confidence in the stakeholders by showing a **summary of the model checks**.